NEW REMEDIES.

THERAPEUTICS.

NITRITE OF AMYL IN VARIOUS FORMS OF SPASM, AND ITS VALUE AS AN AID TO DIAGNOSIS.

In a paper read before the Philadelphia College of Physicians, Feb. 3, 1875, Dr. S. Weir Mitchell said: Excepting its use in angina pectoris and asthma, this powerful agent had been little resorted to when, in April, 1872 (*Phil. Med. Times*), I reported cases of its use to arrest epileptic attacks. During the same year I advised Dr. Jenks to test its value in puerperal eclampsia, which he accordingly did, reporting his success in the same journal in 1873. During that year (*Arch. Sci. Prac. Med.*, p. 311) Dr. Wharton Sinkler related a remarkable case in which nitrite of amyl had been freely used with admirable results. Since then, in the *Medical Times* and in the *Reporter*, I have more briefly alluded to the value of this agent as a means of diagnosis.

I make this statement, first, because it shows that what I shall state is founded on no brief or recent experience; and second, because it seems to be unknown in England that it had been long used as an antispasmodic agent in America.

For more than a year I had been aware that nitrite of amyl would be a proper means to use in epilepsy. It was clear to me that the nitrite caused, with rapidity, fulness of the vessels of the whole head, and that near to the outset of an attack of epilepsy there is a condition of vasal spasm. I hoped that I would be able, by the use of the nitrite

to counteract this state of vascular contraction, and so to break the chain of morbid phenomena, and thus end the attack before its more disastrous consequences should follow. This reasonable expectation was not disappointed. I was, of course, well aware that in most cases of epilepsy there would be no time to secure the inhalation of enough of nitrite of amyl to produce an effect, but I was also aware that in at least two classes of epileptics the opportunity for its use would be given. There are rare examples of epilepsy in which the warning of the coming on of an attack so far precedes the spasm and loss of consciousness as to enable the patient to inhale the nitrite. In other cases, the patient has a succession of fits within a limited space of time, and being then, of necessity, in bed, is so placed that a watchful nurse may find time to use the nitrite. I waited long for my first chance, but in March, 1872, the opportunity came.—(*Phil. Medical Times*, April, 1872.)

J. C., aged twenty, epilepsy due to venereal excesses—the fits being always preceded, except on two occasions, by spasms of the left hand and arm. As a last resort, three or four drops were put into a vial, and he was directed to inhale it by putting the open vial up one nostril, while with one finger he closed the other, and then make a few full inspirations.

The first attempt failed, because, as he said, the spasm of the left limb made him nervous. On the second occasion, he began to breathe it the instant the fingers twitched, having pulled the cork of the vial with his teeth. In a few moments he felt his face flush, the carotids beat violently, his head felt full, and, the spasm ceasing, the attack at once, and for the first time in his experience, was cut short. Four days later, he thus cut short another attack: and the experiment has since succeeded in eleven fits, and failed, from too late use of the nitrite, in two. Moreover, the attacks have lessened in frequency, and now come on only once in ten or twenty days. Not only is there no evil effect from the drug, but his memory has improved; is again taking bromide of lithium.

During the last two and a half years he has had only seven fits, the last being nine months ago. I said seven fits, but, in reality, only one fit, all of the others having been cut short by the nitrite.

Since this case demonstrated for me the remarkable power of this agent to check spasm, I have given it for that purpose a number of times, its value being limited by the rarity of cases in which there is time to secure its full inhalation. In some of my examples the chance of using it has been occasional only, not all of the attacks affording the time needed to secure its value. . . . .

In the following case there was a gastric aura which preceded the

fit by an interval so long as to enable the sufferer to inhale the nitrite:

Miss E., aged twenty-six. Has had epilepsy seven years. Her whole history it is needless to relate. About one minute before the fit comes on, Miss E. has a sense of what she calls "goneness" at the epigastrium. This sensation passes into nausea, and apparently the fit interferes with the consequent vomiting, which very rarely follows.

This form of aura is certainly rare. The nitrite of amyl instantly arrests both the nausea and the subsequent fit; but the sense of fulness in the head so alarms Miss E., who is a highly nervous and emotional person, that she is very averse to using it.

The following case, which is one of the most remarkable known to me, was reported by my former clinical assistant, Dr. Wharton Sinkler, in the New York *Archives of Medicine*:

James M., aged twenty-four, single. November, 1871, fell ninety-five feet, and had fractured ribs, dislocated ankle, and fracture of the lower dorsal spine. Unconscious one week. Subsequent palsy of legs, and insensibility. He was five months in this state, and had all of this time incessant headache; then he began to have convulsions, and lost hearing and speech. When he entered the Infirmary for Nervous Diseases, he walked on crutches, but the left leg was palsied totally, and much contracted. The tongue and velum were paralyzed, and he was deaf and speechless.

On the fourteenth day after entering, he had a fit, and they became almost incessant. Blood was taken from his neck, and almost at once hearing came back, but the fits, which were violent, continued. Nitrite of amyl was now used. It checked a long fit instantly, and after this it was given whenever a fit took place and it could be used in time. In every instance it aborted the fit.

I have never seen nitrite of amyl fail where there was time to use it. Last week I suddenly checked with it a fit coming on in my office, and a few months ago had the chance of exhibiting to those present at my clinic its capacity to stop for hours the convulsions of tubercular meningitis in a child.

From what I have seen of this agent, it does not seem to possess, in most cases, any capacity to lessen the probability of a return of the fit; but of its power to arrest the actual convulsion, there can be no doubt.

I have spoken of the use of the nitrite in the convulsions of tubercular meningitis. I have not yet used it in forms of spasms from peripheral irritation in children, but it would be, I should think, a safe and a ready agent. Neither has it been as yet employed in the horrible convulsions of uræmia.

Dr. M. details at length a case, remarkable for the fact that the patient is liable to at least three forms of attack; and that the nitrite, while it checks one of these, does not affect the second form, and as to the third, far from relieving, only makes it worse. In the spasmodic attack the right thumb is first turned inwards; then the fingers, and lastly the wrist, are forcibly flexed. Rarely the neck is twisted, and more rarely the right face. This form of fit is cut short by the nitrite. As the face flushes, the attack passes off. The spells of pure giddiness have been frequent of late. They come on suddenly, and there are none of the strange mental conditions which attend the other spells. Now, in these vertiginous fits, the nitrite, if used early, only hastens the culmination of the trouble, and he believes, greatly intensifies it.

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The influence of amyl over cases of hysterical angina is as well marked as in those of men, or in non-hysterical attacks of this disorder. I have twice employed it in forms of disease which are akin to angina, are not infrequent, but lack a distinct name. Here is one which may pass as an illustration:

A middle-aged lady, after many and grave trials during the late war, began to suffer from occasional attacks, which came at any time in the day, held no relation to conditions of the stomach or uterus, but were at last most frequent and distressing. A sense of fulness at the epigastrium announced the attack, and from the stomach a sort of aura, accompanied with a feeling of panic and terror, passed up into the head, with intense pain in the right neck and face, the infra- and supra-orbital region, and at last a few moments of deadly pallor ended the attack, which occasionally wound up with nausea, and rarely with emesis. There was no irregularity of the heart, no pain in the arm, only a slight quickening and enfeeblement of pulse towards the close of the attacks, which usually lasted from one to five hours, and when I saw her were of daily occurrence. After a trial of many means, I at last used the nitrite of amyl. The effect was singularly happy, and it was very rare that it failed to break up and dispel the trouble.

I come now to speak, and with rather more hesitation, of the use of this agent as an aid to the diagnosis of certain forms of cerebral disorders.

Those who see much of neural diseases meet very often with cases of head troubles, in which there are attacks of vertigo, or disturbed equilibrium, or mere sense of fulness with or without mental disorder. Sometimes they are either epileptic and distinctly so, or else they are the far-away beginnings of that malady. Sometimes a therapeutic

diagnosis is possible, and the mere fact of the bromides controlling them may, when taken with the symptoms, clearly settle their nature. But very often our suspicions are in favor of their being purely vascular disturbances of congestive type, and then I think the nitrite of amyl may prove serviceable in settling the question; since in such cases the inhalation will sometimes recreate briefly the train of symptoms, so that they are at once recognized by the patient. This, when it occurs, is fairly conclusive as to the attacks having been truly congestive in character. The negative has also its value. Personally, I have obtained useful help from this means, but I look upon the whole matter as one which it is well to present to the profession as worthy of study, without at present claiming for it any great utility.

I give cases to illustrate the use of the nitrite in diagnosis:

E. L., very nervous and irritable, aged twenty-nine. Has spells, two or three times a week, in which he is said to lose consciousness, without any coexistent spasm. On other occasions the trouble does not go so far. On inhaling nitrite of amyl, he said at once, "That is the kind of feeling I have in my attacks." I came soon, thus aided, to understand that his fits were coincident with relaxation of the arterioles. He was rapidly cured by full doses of digitalis, with general tonics and cold shower-bath.

Robert H., aged thirty-eight; a master of an oyster-boat; had a slight sunstroke in August, 1873. Ever since, he has had a great deal of vertex headache, with now and then severe attacks of general headache. I was inclined to believe that the vertex pain was due to subacute meningitis. It was suddenly increased by the drug to such a degree for a few minutes as made me regret my experiment.

In some cases the nitrite has failed to help me; in others it has returned a useful negative; in others a still more valuable affirmative.

After much and long use of it, I have altogether lost the dread of the remedy with which I began. I would suggest that in syncope and in hysterical convulsions it might well repay a trial, and that possibly in the cerebral symptoms arising from shock it may also prove of value, and should be essayed in the cold stage of ague.

On the Remedial Value of Nitrite of Amyl.—A discussion on this subject took place at a meeting of the Berlin Medico-Psychological Society on December 7 (*Berliner Klinische Wochenschrift*, February 15, 1875). It was opened by Dr. Solger, who gave a brief account of the experimental results arrived at by Filehne. The latter attributes the blushing caused by inhalation of two to five minims of

the nitrite to paralysis of a centre, situated in the brain, which presides over the innervation of a particular vascular region. The vagus-centre is temporarily paralyzed at the same time; hence the quickening of the pulse. Solger observed that, in his own case, prolonged exposure to an atmosphere charged with the vapor of the drug caused first drowsiness, and then wakefulness; the latter being attended by warmth of the extremities. He suggests that other vaso-motor centres, such as those shown by Goltz to exist in the spinal cord, may also be paralyzed by the nitrite, its action on the vaso-motor centre in the brain being only the first and most sudden of the series. Brilliant results were obtained from the drug in certain forms of epilepsy and loss of consciousness. Its action in vertigo proved capricious; it failed to relieve this symptom in two cases in which it was connected with malarial poisoning, and yielded to the administration of quinine. The vapor was given to an infant under twelve months old, suffering from one-sided clonic convulsions; the usual physiological effects ensued, but the convulsions were in no way modified. Subsequent inhalation of chloroform checked them for a considerable time. An adult, suffering from epileptic fits ushered in by an aura in the right leg, was directed to inhale nitrite of amyl as soon as the aura made itself felt; this was invariably found to prevent the subsequent loss of consciousness and convulsion. For convenience of administration, Solger recommends the use of large capillary tubes, containing three to five minims each; these are charged with the nitrite and sealed at both ends; when required for use, one tube is folded in a bit of rag and broken up with the fingers, thus furnishing a sufficient dose of the vapor.

Jastrowitz stated that he had found the drug useful in asthma, but quite useless in patients suffering from melancholia. He doubted whether the hyperæmia of the cerebral vessels occasioned by the nitrite extended to the entire brain; the absence of any visible change in the blood-vessels of the optic disk, either during or after inhalation, leading him to believe that the dilatation of the arteries is confined to particular regions of the brain.

Sander corroborated the statements of Jastrowitz as to the occasional benefit derived from vapor of nitrite of amyl in asthma. He found it useless in the psychoses, and in epileptic fits not preceded by an aura. In two cases, the cessation of inhalation was followed by alarming symptoms of collapse. This may perhaps be explained by an observation of Schüller's, who found that the dilatation of the arteries of the pia mater under the influence of nitrite of amyl was followed by a marked narrowing of their calibre.—*London Medical Record*

APOMORPHIA.

Since 1872, much has been learned of the nature of this drug through the observations of Victor Bourgeois (*De l'Apomorphin; Recherches cliniques sur un nouvel émetique*, Paris, 1874); Marthussen, Wright, and more recently by Chouppe and Harnack (*Archiv für experiment. Pathol. und Pharmak.*, 1874), the latter having confined his experiments to animals with the purpose of discovering if any important secondary effect is produced on the organism aside from the well-known emetic effect of the drug. The conclusions summarized by Bourgeois are as follows:

1. Apomorphia, or rather hydrochlorate of apomorphia, when pure and employed in suitable doses, is a rapid, simple, and harmless emetic.

2. It is *rapid*, for its action always takes place at latest within ten minutes after administration.

3. It is a *simple* emetic, for it does not appear to exert any influence upon the other functions.

4. It is innocent, and does not seem to possess dangerous toxic properties.

5. Lastly, the facility with which it can be administered by hypodermic injection fulfils a therapeutic desideratum, and suggests its adoption by physicians in some special circumstances, such as the medication of children and of the insane.

As an average dose, for an adult man, of the Scotch hydrochlorate of apomorphia prepared by Macfarlan & Co., Edinburgh, M. Bourgeois fixes on one-sixth grain hypodermically and one-half grain by the mouth. The best form of solution is that obtained by dissolving one part of the salt in one hundred parts of distilled water. If the proportion of the salt be greater the solution becomes muddy, and it is necessary to add one or two drops of HCl in order to clear it,—a serious objection in the case of a liquid intended for subcutaneous injection.

The results of observations made in Germany, and reported in the *Allgemeiner Wiener Med. Zeitung* of February 2, 1875, show that its main action is emetic, and the emesis occurs after its administration by any mode, but most rapidly when injected into the veins or subcutaneously. When introduced into the stomach, its action is less positive, and larger doses are required. It is always preferable to administer it subcutaneously, for the reasons that it is not at all painful, nor is it liable to produce abscess or dermatitis. For two or three minutes following the injection, the patient experiences no change of sensation whatever; soon, however, he feels a sense of weight in the

epigastrium, accompanied by a slight headache. Salivation increases, becomes very profuse, and the entire body is covered with perspiration. One or two attempts at vomiting are made, but fail; at the third, or at farthest, the fourth attempt, free and profuse emesis occurs. The patient "throws up" three or four times in succession, after which there is a period of rest. After the intermission of five or six minutes, the vomiting again sets in, and is again succeeded by a season of rest, and so the scene repeats itself five or six times, until finally, in the course of perhaps half an hour, the symptoms abate, and a sleep of from one-half to one hour ensues. Dr. Chouppe fixes the average dose for an adult at one centigramme, or about one-sixth of a grain.

DIGITALIS IN TYPHUS FEVER.

Dr. H. McNaughton Jones contributes an article to the April number of the *Dublin Journal of Medical Science*, in which he contrasts the action of alcohol with that of digitalis, as observed in a large number of cases of the disease admitted to the Cork Fever Hospital in 1874, during which period the disease was of a very virulent character. Following some general remarks, he says, regarding the action of the digitalis:

1. *Pulse and Respiration.*—It has (not constantly) a well-marked effect in changing the character of the pulse, strengthening it, rendering it less compressible, at the same time that it gradually lowers it, and, if pushed for a lengthened period, generally reduces it to between forty and sixty; this result being obviated by watching the temperature, and ceasing the administration of the medicine on its marked reduction; never exceeding moderate doses of the drug, and repeating these at intervals dependent on *the general condition of the patient.* The respirations, as a rule, decrease with the pulse.

2. *Temperature.*—It appears, in a large majority of cases, to perceptibly affect the temperature within two days after its administration in moderate doses—say twenty drops of tincture, or half an ounce of infusion, or both combined—every three or four hours (I generally give twenty drops of chloric ether with it, as I find that this renders it more tolerable by the patient); the reduction of temperature will, to a great extent, depend on the quantity of the drug administered, and its regular exhibition; the rise and fall being materially influenced by the continued use of the drug night and day. In a large proportion of the cases I treated, it was not given at night; in some it was, and in these latter the characteristic action was much more speedily manifest. In some cases, this effect on the temperature

is not so apparent; this I noticed in cases with very heavy eruption, also in fatal cases; in others, great variations in the temperature, without any apparent cause, take place during its administration. On young patients its action is particularly marked, as a rule.

3. *Length of the Fever.*—I cannot say that it appears to decidedly influence the duration of the fever; in most of the cases in which I administered it, the fever was not of long duration, a larger number terminating from the fifteenth to the eighteenth days.

4. *Nervous System.*—This was one of the most marked results: there appeared in a large majority of the cases to be complete immunity from delirium. I had only two cases, during the past twelve months, treated with digitalis and *without alcohol*, in which there was what I would call "high delirium." Most of the cases went through the fever quietly, and there was a marked contrast to those in which I had been in the habit of giving the latter.

5. *Tongue and Skin.*—The tongue (particularly in those cases treated without alcohol) was moist in nearly every instance, and there was a noticeable absence of the hard, brown, and dry tongue, so characteristic of this affection, especially when wine is administered. I could not say that there was any marked effect on the petechiæ, save their early disappearance in a large number of cases; this, however, might only be incident to their favorable course and termination. I was also struck by the absence of critical sweats.

6. *Urinary Secretion.*—The secondary effect of digitalis on the kidneys was apparent in the free secretion of urine in nearly all the cases treated with it. In cases treated without alcohol, with or without digitalis, I found convalescence quicker, less consequent debility, and I believe with Dr. Grimshaw that the administration of the digitalis lessened the necessity for alcoholic stimulants of any kind. In few of my cases did it produce vomiting.

Conclusions.—1. That in the treatment of fever, typhus, and other fevers, too much reliance has been placed on alcoholic stimulants, and that fashion, rather than reason, has swayed many in their *indiscriminate* employment. 2. That the percentage of cases requiring such stimulants is a low one; and that while our administration of them as regards quantity and kind must depend entirely on the condition of the *patient*, still the utmost caution (with our present knowledge of their physiological action) is required. 3. That in digitalis we have a powerful cardiac stimulant, which, while it gives force to the heart, does not do so at the expense of the system, but rather is a conservative agent, which controls expenditure, and limits waste of vital action—always, of course, remembering that a larger number of cases will recover without any specific treatment, save that care and guid-

ance which provides for the wants of the system, and secures the patient from the risks of complications. 4. That digitalis appears to be indicated in the early high temperature range, regulating our administration by its effects on both, using it, rather, with the object of guiding the patient up to a certain point, than of curing the disease.

EXPERIMENTAL RESEARCHES ON PROTOXIDE OF NITROGEN.

Dr. Tony Blanche, in *Thèses de Paris*, 1874, gives as the result of his very complete and extremely interesting experiments on the mode in which protoxide of nitrogen acts, that of all experiments made on protoxide of nitrogen one great fact results; it is that asphyxia supervenes in persons submitted to the inhalations of this gas, an asphyxia demonstrated by indisputable signs. In all the experiments reported these symptoms have been remarked, and Drs. Jolyet, Tony Blanche, Charcot, Blot, Laborde, and Dumontpallier have all testified to having seen the purplish color of the face, the slackening of the respiration, etc., which M. Charcot characterizes as an extremely serious condition, bringing to mind certain phenomena of the death-struggle. M. Magitot entirely shares the opinion expressed by MM. Charcot and Blot on the subject of the surgical employment of this gas. The number of known deaths increases daily, and in all which have been ever so little studied, the accident has been the result of asphyxia. Some necropsies have been made, and have plainly demonstrated this mechanical action. It has been alleged that the bad quality of the gas used for the experiment explains the asphyxia; but such is not the case, for M. Picted had observed these alarming symptoms even in experiments carried on at the house of the inventor of protoxide of nitrogen. Besides, if the preparation of the gas presents difficulties of the most delicate kind, which is certainly the fact, that only constitutes an additional danger in addition to those which are already sufficient to proscribe inhalations of protoxide of nitrogen. From his own personal experiences Dr. Tony Blanche comes to the conclusion that chemically pure protoxide of nitrogen cannot maintain the respiration of animals any more than that of vegetables. Combustion, in which respiration consists, is not sufficiently powerful to decompose this gas. Breathed in a pure state by animals, the protoxide of nitrogen is then an asphyxiating gas, which brings on death by producing all the usual signs of asphyxia by strangulation or by the respiration of inert gases (hydrogen and nitrogen). If protoxide of nitrogen inhaled in a pure state produces anæsthesia, it is by acting as an

asphyxiant in consequence of the want of oxygen in the blood. Insensibility only shows itself when there are only two and three per cent. of oxygen in the arterial blood; the blood is then very black. Animals, on the contrary, can live if they breathe artificial atmospheres of protoxide of nitrogen and oxygen, in the proportions of the aerial gases; protoxide of nitrogen replacing the nitrogen without showing disturbances of sensibility. Protoxide of nitrogen appears, however, to leave an action not clearly defined on the brain, somewhat analogous to that determined by the diminution of oxygen, and not bringing on loss of consciousness. He is also of opinion that protoxide of nitrogen, being an irrepressible gas of which the preparation offers certain difficulties, and which only produces anæsthesia as a consequence of the asphyxia it produces, and its use having caused death in several instances, its employment ought to be, if not completely abolished, at least greatly restricted in medical practice.—*London Medical Record.*

ACTION OF JABORANDI ON THE DIGESTIVE ORGANS.

In an article inserted in the *Gazette Médicale* for March 20, Dr. Albert Robin, who has been making under the auspices of Prof. Gubler so elaborate an investigation into the properties and action of jaborandi (*Pilocarpus pinnatus*), enters at some length into a consideration of the effects it sometimes produces on the digestive organs.

Salivation, exudation, and the increase of the lachrymal, nasal, and bronchial secretions, he observes, are normally, with rare exceptions, the sole actions induced by this drug. This is what occurs in the physiological condition of subjects who are in good health, its influence on the digestive tube being quite trifling—the patient sweating, spitting, and weeping, without any other immediate phenomenon being produced. But many circumstances may induce a deviation in the action of the agent from its habitual type; and then it is upon the alimentary canal that this is manifested. Therefore, we may lay down an almost absolute rule that when the hypersecretions habitually induced by jaborandi are absent, or undergo a notable diminution in their general and collective intensity, compensatory action is always found in the digestive canal. The phenomena which then ensue are of two kinds—first, the normal, which are nearly constant, and depend upon the general effects of the medicine, of which they are the direct consequence; they are the intense thirst which accompanies and follows sudation, and changes in the appetite, which is sometimes diminished and sometimes exaggerated. Secondly, the accidental, which appear whenever the normal action of the jaborandi is impeded

by any cause, or certain precautions have been omitted during its administration; they are vomiting and diarrhœa. This division is not absolute, for vomiting may appear during normal action, but it holds good in the great majority of cases.

1. *Thirst.*—As a general rule, after swallowing a cup of tepid infusion, a sense of warmth is felt in the region of the stomach, and then thirst supervenes and still continues, even after the termination of the sweating. As the result of observation the precept may be laid down that the patients should be prevented drinking to quench their thirst, as this is a frequent cause of vomiting. A little very weak coffee, or a light infusion of peppermint, etc., may be administered.

2. *Appetite.*—This is rarely diminished, but is often increased after the termination of the sweating. One patient, who in thirty days took jaborandi fourteen times, became more hungry after each administration.

3. *Vomiting.*—This has been met with thirty-eight times in ninety cases—*i.e.*, in forty per cent. This proportion might lead to the belief that it is one of the normal effects. It is not so; and when the causes of such vomiting are known, it may, in general, be prevented. (*a.*) *Influence of the dose and preparation*—viz., when the dose is too large or the leaves too fresh: Vomiting from this cause, which is preceded by nausea, comes on some minutes after taking the infusion, and usually before the medicine has had time to produce its special effects. (*b.*) *Influence of food:* It is indispensable that the patient should take jaborandi in a fasting condition. This rule is a very important one; for seventy per cent. of those who did not observe it vomited, and that even when one or two hours had elapsed since the meal. The vomiting may take place either at the commencement or in the midst of the sudation—the effects of the medicine being, of course, less energetic and of shorter duration. (*c.*) *Influence of the saliva:* It is essential for the patient to be enjoined not to swallow the saliva that is produced during the salivation; for otherwise vomiting will infalliby occur. This takes place at the end of the sudation, it being almost pure saliva that is rejected. (*d.*) *Gastric hypersecretion:* In some cases in which there has been but slight sudation, at the end of this a colorless acid fluid is vomited, which is really gastric juice. In other instances the matters vomited are clear, bilious, and alkaline. These cases are explained by the deviation of the habitual action of the jaborandi, analogous to that which is produced in animals who do not sweat, and in whom all the effects of the agent seem to be concentrated on the alimentary canal. The acid, and especially the bilious vomitings, are produced whenever sudation is

not freely developed, as when it is checked by a chill just as it is about to be produced. After the vomiting, and the diarrhœa which usually accompanies it, the sudation that has been thus interrupted is either not re-established or only imperfectly so. Where the existence of a chill cannot be ascertained, an idiosyncrasy may possibly exist. It is thus seen that in the great bulk of cases the causes of vomiting may be ascertained and avoided; and this is of importance, as for many persons the nausea and vomiting are such distressing occurrences that they would induce patients to refuse to continue the medicine.

4. *Diarrhœa.*—It not unfrequently happens that just before the sweating commences, or in a few hours after its termination, the patient has one or two soft or even liquid stools. As after these all goes on as in the normal condition, they are of no consequence. But when there is a deviation in the action of the jaborandi, the vomiting that then occurs is always accompanied by a diarrhœa of variable abundance, which is generally preceded by colic. It is not, however, of long duration, ceasing, like the vomiting, after some hours, when the active principles of the jaborandi have been eliminated by the gastro-intestinal canal.—*Medical Times and Gazette.*

Jaborandi.—M. Gubler presented to the Société de Thérapeutique recently two specimens of jaborandi, one of which had been sent to him by M. Continho, the other taken from a lot consigned to a drug house in Paris.

These two specimens resembled each other closely, and seemed to belong to the same species (*Pylocarpus pinnatus*); their action was identical. A patient to whom M. Gubler had administered four grammes of this new jaborandi perspired very freely, and gave about a litre of saliva. The branches seemed to have an action similar to that of the leaves, and nearly as intense.

The administration of jaborandi is appropriate, M. Gubler thinks, under all circumstances, and in any disease. It occasionally produces vomiting, particularly when it is not administered fasting. Other effects are, production of violent thirst, and, occasionally, considerable swelling of the submaxillary glands. Jaborandi is indicated, according to M. Gubler, in anasarca and effusions of all kinds, subacute articular rheumatism, bronchitis with asthma (M. Gubler has had remarkable success in preventing attacks of the latter affection), and influenza. It may also be recommended as a substitute for calomel, especially in ophthalmia, when it is desired to induce salivation.—*Medical Times.*

The Action of Jaborandi Bark.—Galippe and Rochefontaine (*Progrès Médical*, February 13, 1875) state that infusions of jaborandi

bark produce the same physiological effects as infusions of the leaves. Among those effects, they enumerate diarrhœa and marked dilatation of the pupils.—*London Med. Record.*

Atropia an Antagonist of Jaborandi.—Drs. Sydney Ringer and Gould having discovered that atropia arrests the salivation and diaphoresis produced by jaborandi, a fact which Vulpian has also observed; the latter has performed experiments to see if atropia has also a similar effect on other secretions increased by jaborandi. He first demonstrated in a very clever manner by means of canulæ introduced into the canal of Wirsung, ductus choledochus and the ureter, in dogs that were curarized and subjected to artificial respiration, that the pancreatic, biliary, and urinary secretions were increased to a very notable degree by the injection of an infusion of jaborandi leaves into the crural vein in the direction towards the heart; he then observed that the pancreatic secretion was completely arrested a few minutes after the injection of one-third to one-half of a grain of atropia in an aqueous solution.

The biliary and urinary secretions were diminished considerably under the same conditions, but they did not stop altogether. In one of his experiments, where the stomach was opened before the injection of jaborandi (an infusion of a little less than a drachm of the leaves to the ounce of water) he saw a certain quantity of fluid flow from the mucous membrane of the stomach; after observing the fact he shortly afterwards injected a similar infusion of jaborandi, but followed it by an injection of one-third to one-half a grain of atropia, and the appearance already noted did not then take place.—*Gaz. Hebdom.*

MONOBROMIDE OF CAMPHOR.

Mr. Robert Lawson, Pathologist and Assistant Medical Officer, West Riding Lunatic Asylum, contributes to *The Practitioner* (April, 1875) another article on this subject.

"It will," he thinks, "be sufficiently evident by this time that the therapeutic value of the drug is not sufficient to entitle it to a place beside the many calmative and soporific medicines which are analogous to it. Many of these are certainly superior to the monobromide in the suppression of sensory, motor, and cerebral excitement, and none of them possess so many inherent bad qualities as a therapeutic agent. I have already sufficiently referred to the disadvantages arising from the insolubility of the drug, and the gastric irritation which, even though vomiting is not produced, is liable to result from its administration.

In the hypodermic use of the drug it is an additional drawback that the viscid solution in glycerine and alcohol obstructs the syringe-needle either by clogging or by the formation of crystals during injection; and though the observation may appear a trivial one on paper, the circumstance is liable to cause great annoyance and inconvenience in practice. It is clear, in the face of this detrimental evidence, that, as the monobromide has not been advanced as a specific, its value can be established only by favorable comparison with drugs possessing analogous properties. By glancing briefly at the substances which are accepted as indubitably possessing the therapeutic features claimed for the medicine under consideration, it will be seen how far the latter falls short of the potency and fitness possessed by the former. Opium, chloral, cannabis indica, bromide of potassium, belladonna, hyoscyamus, conium, ergot of rye, valerian, assafœtida, and all diffusible stimulants, possess the capability of performing, either directly or indirectly, one or other of the many medicinal functions ascribed to the new drug. In several of them we have in a handy, soluble form, the means of producing sleep, uninterrupted by the vagaries of delusion or the promptings of repulsive hallucinations. In some of them we have medicines which are eminently narcotic, and still leave little or no trace of gastro-intestinal irritation. In both respects the monobromide of camphor is at fault, as the hypnotic condition induced by it is broken by the evident influence of painful subjective impressions, and the administration of it is apt to be followed by acute gastric catarrh and secondary impairment of tissue nutrition. In such conditions as are present in delirium tremens, hysteria, and other diseases affecting the sensory, kinetic, and intellectual centres, and generally associated with some concurrent disorder of the *primæ viæ*, there is no necessity for falling back upon a doubtful medicine for the production of a calmative effect. It is to be feared, perhaps, that the means already at our disposal for such a purpose have been too freely used when attention should have been more steadily directed to recuperative and radical measures. The same observations apply equally to chorea; and with regard to the suppression of convulsive seizures, it is difficult to imagine that monobromide of camphor will ever supersede chloral in procuring central exemption from peripheral or internal irritation; or that by its power of contracting vascular calibre it will take the place of bromide of potassium or ergot of rye in the endeavor to modify the blood-supply to irritated centres. Though there is no doubt that by virtue of its hypnotic properties monobromide of camphor may, when administered in sufficient quantities, produce sleep in insomnia, subdue emotional, sensory, and motor irritation in hysteria, control convulsions, and even overcome the excitement of delirium tremens, yet it is evident that the

drug cannot operate with the certainty and safety which characterize the analogous action of other well-known and time-honored medicines. If, in addition, the risk of exciting cutaneous inflammation by hypodermic, and gastric catarrh by oral administration be considered, it must be acknowledged that monobromide of camphor is an agent distinguished on the one hand by the absence of independent or special therapeutic value, and on the other by the presence of several faults, from which many analogous and more potent substances are altogether exempt.

ON THE THERAPEUTIC USES OF PROPYLAMINE AND ITS SALTS IN VARIOUS DISEASES.

Dr. Phillippo Cerasi, in a work recently published by him, affirms that this drug is not poisonous when it is given in suitable doses (from nine to forty-five grains *per diem*). He fortifies his opinions by the experiments of M. Raynal and Dr. Dujardin-Beaumetz, and adds that in his practice he has always found a difference of action between the chlorhydrate of trimethylamine and the chlorhydrate of amylamine. The former rather possesses a sedative action on the nervous system, and the second diminishes the temperature more rapidly by regulating the circulation. He also observes that all the salts of propylamine have a more or less rapid and marked action on the nervous and cardio-vascular system. He has successfully employed propylamine and its derivatives in fourteen cases of acute rheumatism. In three cases the patients showed well-marked cardiac symptoms, intense dyspnœa, very painful precordial pain, and small pulse; all these morbid phenomena gave way rapidly to the action of the drug. Dr. Cerasi mentions that in one case where the pains in the joints persisted, he used propylamine as an external application with much success. He had the painful joints rubbed with a liniment composed of one part of propylamine in three parts of glycerine over which a layer of wadding was laid. This is a fact of some importance.

Dr. Cerasi having made up his mind from these experiments that this drug has a salutary action on rheumatism, by the depressant power it exercises on the cardiac activity and arterial dilatation, and by its narcotic powers, in order to determine if these therapeutic qualities were really present, he tried analogous experiments in other diseases, and he has begun to use it in affections in which it is necessary to moderate and regulate the circulation of the blood. He prescribed chlorhydrate of trimethylamine for four patients suffering from imperfect cardiac innervation, and it succeeded in calming the heart's action with sufficient quickness. He also had reason to be satisfied

with its use in two cases of hypertrophy and one of cardiac dilatation. In a case of acute pericarditis, this drug diminished the pain and lessened the force of the pulsations; whilst in two cases of catarrhal pneumonia, and in one of amygdalitis accompanied by fever, propylamine had advantageous effects. Dr. Cerasi thinks that if ulterior observations, taken on a large scale, should serve to confirm the fact that this agent, which moderates the excess of caloric, can arrest the morbid processes in which profound organic oxidation is the great cause of the regressive organic metamorphoses, the practitioner would possess a precious means of gaining time and combating disease with greater certainty.

Pursuing his researches, Dr. Cerasi made experiments with propylamine, administered in cases of infectious disease. In two cases of typhoid fever, and in one case of typhus, he found the temperature lowered by the use of this medicine. In two cases of pyæmia, the propylamine lowered the temperature progressively; but in one of them the temperature having fallen to 37°, suddenly rose to 40°, and the patient died. He obtained a notable lowering of the temperature in two cases of scarlatina and in one of malignant small-pox during the suppurative stage. He made use of it in a case of acute alcoholism, accompanied by a very high temperature, which is a serious symptom; the first day it was 38.2° Cent. (100.76° Fahr.); the second 39.5° Cent. (102° Fahr.); the third day over 40° Cent (104° Fahr.). It was then that chlorhydrate of amylamine was administered, and at the end of two days the temperature had fallen two degrees. The same plan of treatment was persevered in, and on the fifth day the temperature fell to 38°, and on the ninth day it was at 37.2°.

From these results, Dr. Cerasi concludes that propylamine and its derivatives exercise a depressing action on the cardio-vascular circulation, and that this action appeared to him to reside in a certain elective action on the heart and the tonicity of the arterial vessels. It also diminishes the excess of heat produced by certain morbid processes, especially in those caused by the presence of ferments. It brings the peripheric circulation into harmony with the central circulation, especially when the defective distribution of the blood is caused by disturbed innervation.—*London Medical Record.*

ON THE PART PLAYED BY THE PHOSPHATES IN THERAPEUTICS.

At the meeting of the Paris Société de Thérapeutique, on March 21, M. Dujardin-Beaumetz presented a report (*Bulletin Général de Thérapeutique*, April 15, 1875) on an essay by Dr. René Blache,

based on cases of albuminuria and diphtheria in which phosphate of lime seemed to have been of great value. M. Blache is of opinion that albuminuria and diphtheria are two cachectic conditions having this point in common, that the albumen would have a tendency to eliminate itself in both diseases either by the urine or the surface of the inflamed mucous membrane. The action of phosphate of lime would consist in favoring the assimilation and the passage of this albumen in the form of cells and fibres of all kinds, and would then oppose itself to its elimination. Without stopping to consider M. Blache's theory, M. Dujardin-Beaumetz thus sets forth the state of the question of the influence of calcareous phosphates on the economy:

Owing to the progress of animal chemistry, it has been decided that all the constituent parts of the animal economy are composed of immediate principles, with which are sometimes associated mineral substances; these being alkaline phosphates (soda and potash), or earthy ones (lime and magnesia). As a result of these analyses certain laws have been established which it is important to know, and which may thus be summarized: 1. In all the constituent parts of the animal economy, the bones excepted, the proportion of alkali (soda and potash) is always four times more considerable than that of the earthy parts (lime and magnesia). 2. In the fluid portion the soda predominates; in the solid parts, the potash. 3. In the liquid portions, the alkalies are in larger proportions than the phosphoric acid; whilst in the solid portions the phosphoric acid prevails over the alkalies. These laws once known, it was then thought that the phosphates, thus forming part of all the constituent substances of our economy, became bodies indispensable to our existence; and Choisat's experiments seemed to give warrant for this view of the case. Since then, experiments, taken up again by Kämmerich, Voit, and other experimenters, have shown that the action of the phosphates had been much exaggerated, and that as a rule, they only played the part of simple aliments. M. Dujardin-Beaumetz does not offer any decision on the question of the absolute necessity for phosphates. He thinks they are useful; but he asks himself, in the latter case, how may the dose of these phosphates be administered and increased? He then shows, by the precise experiments made in Germany, and of which M. Samson has given a very exact abstract (*Bulletin Gén. de Thérapeutique*, vol. lxxxvii.), and by M. Chéry-Lestage's memoir (*Ibid.* vol. lxxxvii.), that the only way of administering phosphates is to employ those which nature has already assimilated—bran-bread, and beans of different kinds. Whenever it has been wished to augment the dose of phosphate, by adding soluble or insoluble phosphates to the food of animals, these phosphates have only passed through the economy

without effecting any lodgment there. However, beneficial results seem to have been obtained from soluble phosphates in certain affections; and these successes M. Dujardin-Beaumetz explains by the precipitation of insoluble phosphates, as M. Mialhe demonstrated a long time since, and M. Cauler at a later period (*Bulletin Gén. de Thérapeutique*, vol. lxxxvii.), and by the favorable action of hydrochloric and lactic acids on the digestion. As to the special cases pointed out by M. Blache, their explanation is rather to be found in the acid action of the soluble phosphates than in the phosphates themselves. Bright recommended acid treatment in chronic diseases of the kidneys a long time since.—*Lond. Med. Record*, April 28, 1875.

Therapeutical Action of Iodide of Potassium.—Dr. Kämmerer, of Nürnberg, observes that the researches of Hoppe Seyler have shown that the oxygen of the blood is loosely combined with the constituents of the red corpuscles, and disposed to quit them when exposed to the action of any agent possessing only a slightly stronger affinity for it. Whether ozone is to be regarded as a permanent or transient constituent, is still a mooted question; it is, however, certain that the peculiarities of the oxygen of the blood closely resemble those of ozone, and reactions occur in the blood which ozone alone gives out of it. It is generally known that iodide of potassium and starch paste constitute one of the best tests for ozone, because by the action of the ozone on the salt the iodine is set free, which colors the mixture of a deep blue tint. If we now follow the chemical changes and actions which iodide of sodium must necessarily undergo and exercise in its passage through the circulation, it is to be noted that it undergoes no change in the stomach; for whilst on the one hand the extremely dilute hydrochloric acid of the gastric juice is incapable of decomposing it, so on the other it neither precipitates nor is decomposed by the albuminous compounds, sugar, starch and salts, that are or may be present in that organ. It then enters the blood by diffusion in an unaltered state; but even were the iodide decomposed by the hydrochloric acid of the gastric juice to some extent, it would only result in the entrance of hydriodic acid instead of iodide of potassium into the blood, the action of which would be similar. The large quantities of carbonic acid which are continuously produced in the blood will immediately act on the very dilute solution of the iodide in the blood, especially at the high pressure under which the gas exists in the blood. Hydriodic acid is set free with the formation of the bicarbonate of the alkali. The acid is, however, immediately broken up into iodine and water. Thus, by the direct action of the oxygen of the blood upon the iodide of potassium, iodine must be set free. If we now follow the action of the iodine

now become free, upon the constituents of the blood, we find in the first place that no action takes place, so far as regards the inorganic constituents upon the alkaline bicarbonates. It is upon the organic constituents of the blood that the iodine exerts its influence, and most powerfully upon those which are of most complex composition. Hence any misasmatic compounds and ferments are first affected, then fibrin and the analogous albuminoid compounds, whilst the fats are attacked with least facility. The action of iodine depends, like that of bromine and chlorine, upon its affinity for hydrogen, which it displaces from the compound, and unites with to form free hydriodic acid. The molecules of hydrogen withdrawn from the compound, are at the same time replaced by one of iodine. But this new compound being unstable, immediately breaks up, and the secondary products readily undergo oxidation. In the same way the hydriodic acid dissolving in the blood itself undergoes oxidation, and the iodine is again set free to pass through the same series of changes. A single molecule of iodine may thus aid in the decomposition of many molecules of organic matter, which explains the action of small doses of it. But, besides the iodine, there is another compound resulting from the decomposition of iodide of potassium, namely, potassium peroxide, which is not decomposed by iodine; this acts as a strongly oxidizing agent upon organic compounds, by which it is reduced to the condition of potash, which again unites with carbonic acid gas to form the carbonate. Thus the action of iodide of potassium is partly referable to the action of the iodine resulting from its decomposition in the body upon organic compounds, and partly to the action of the peroxide of potassium upon the constituents of the blood, the oxidation of which it facilitates.—(*Virchow's Archiv*, and *The Practitioner*.)

Injection of Quinine into the Trachea in Severe Cases of Intermittent Fever.—In the volume of "Lectures on the Anæsthetics," just published by Claude Bernard, he records several remarkable cases of severe intermittent fever cured by M. Jousset, of Bellesure, by means of injections of strong solutions of quinine into the trachea. The point of the cases is, that absorption takes place with great rapidity from the mucous membrane of the respiratory passages, and that the injection is not accompanied by any irritation. In such cases, the state of the circulation in the skin forbids the hope that any beneficial effect will result from subcutaneous injections. The following is one of the cases given, somewhat abbreviated. A man aged 45, of strong constitution, attacked for a month with diarrhœa, and suffering from quotidian fever. On the 21st of September the diarrhœa increased, and vomiting occurred. On the 22d, the

patient was in a very serious condition; the face anxious, the eyes deeply sunken, the cheeks prominent, and the lips cyanosed. The body covered with a viscid sweat, the skin cold, even on the thorax. Respiration difficult and wheezing. Pulse scarcely sensible; very slow. The patient had taken a little quinine, but had rejected it immediately by vomiting. No drink could be tolerated. The liver and spleen were very large. The impossibility of administering the quinine in the ordinary way, and the fear that it would not be absorbed from the skin, led M. Jousset to think of giving an intra-tracheal injection. The patient was accordingly propped up on cushions, the head being well thrown back. The neck, which was long and very thin, was thus sufficiently extended. The larynx was fixed with the left hand, and the trocar of a small hypodermic syringe was plunged into the trachea in the median line, about a finger's breadth below the cricoid cartilage; the act of penetration was effected with the greatest ease; the sensation conveyed to the hand when the point entered the cavity of the trachea, being similar to that experienced when a pin penetrates a thick sheet of paper. The syringe was now screwed upon the trocar, and a hundred drops of a solution of quinine were slowly injected. No effort at coughing was produced, nor did the patient experience any painful sensation. He was immediately placed in the recumbent position, and felt relieved. At the end of eight minutes he had a buzzing in his ears; at the end of twelve minutes the sweating ceased; at the end of eighteen minutes manifest improvement set in; the pulse became more perceptible, and could be counted—it was 52. After the lapse of half an hour the appearance of the man was so much altered for the better, that he was scarcely to be recognized. The natural heat of the skin had returned, and the patient drank freely without rejecting any of the fluid, and he swallowed a dose of fifteen grains of quinine. An hour afterwards he was able to rise and walk about, though feeble. The pulse rose to 88, and two hours after the injection he ate some rice and meat. In the evening recovery was complete. Quinine in small doses was prescribed for several days. The little wound healed readily, and there was no ecchymosis. —(*C. Bernard's Leçons sur les Anœsthétiques et sur l'Asphyxie*, 1875.)—*The Practitioner.*

On the Use of Calabar Bean in Impairment of Accommodation.—Dr. Hugo Magnus (*Klinische Monatsblätter für Augenheilkunde*, August-September, 1874) remarks that the influence which is possessed by solutions of Calabar bean over the action of the ciliary muscles is universally recognized, and the extreme value of this influence in cases where the accommodation is suspended by paresis or

paralysis of the ciliary muscle has been thoroughly well established. In this paper, it is the object of Dr. Magnus to show that the agent in question is powerful for good in many instances in which the action of the ciliary muscle is feeble and unequal to its task; in many cases, in fact, where we have to deal with symptoms of asthenopia. It has been shown, especially by Donders, that the asthenopia which is associated with hypermetropia may for a time be relieved by a single dose of Calabar solution; but it is the object of Dr. Magnus to show that by the employment of the solution for some days or even weeks the recurrence of asthenopia may be prevented altogether. In support of these views, the paper contains a brief account of ten cases which had been treated by instillation. The strength of the solution employed was one part of the extract to sixty parts of water, and five or ten drops were dropped in every night and morning, for a week at a time.

Ten cases are narrated from which Dr. Magnus thinks he is able to prove that at least the ordinary symptoms of asthenopia may be relieved by the use of Calabar bean in solution, inasmuch as in Cases 1, 3, 5, 6, and 10, no glasses were necessary, and the simple instillation was sufficient to restore the functions of the ciliary muscle, and to replace the accommodation within its normal range, with no inconvenience to the patient whatsoever. Against this view, it may be said that in Cases 5 and 6 there was a recurrence of the asthenopia; but such relapses, he believes, may be prevented by perseverance with the treatment. His observations, so far as they go, tend rather to show that an absolute and abiding cure is to be hoped for in patients of a certain age only; for instance, in Cases 2, 4, 7, and 8, the age was greater than fifteen years, and in all of these the improvement was limited, and the use of the drops had to be supplemented by the employment of convex glasses.

Dr. Magnus thinks that his plan of treatment is well suited to all cases of asthenopia in children; and he believes it will be found of great value in all cases which display a tendency to strabismus, inasmuch as, by increasing the amount of accommodation without at the same time straining the convergence, the conditions which tend to the development of a squint are not present in so high a degree.

The continued employment of the curative agent appears to have been attended with no difficulties. The conjunctiva in no way resented the frequent application of the drops, and the patients never complained of pain, the little girl, Case 10, excepted; but her complaints can hardly be said to afford any true criterion, and the author thinks that he can assert this much, if no more, that his observations go a great way to show that in Calabar bean we possess a curative agent

whose influence is greater and wider than has been supposed.—*London Med. Record.*

On Goa Powder as a Cure for Ringworm.—*The Medical Times and Gazette*, for October 24, contained a communication from Dr. Fayrer, calling attention to a remedy which has a high reputation throughout India for the cure for certain skin-diseases which are common in that country, and especially of a somewhat obstinate affection called "Indian Ringworm." This remedy, which Dr. Fayrer himself has "found to be most certainly and rapidly effective," goes by the name of Goa powder, Chrysatobine, or Poh di Bahia. Dr. Fayrer commends the powder, which he thinks has not yet become very generally known in the profession, to the notice of dermatologists, and suggests a more extended use of it in this country. He adds, "I regret that I am unable to state what Goa powder consists of, but I believe it to be a production of the vegetable kingdom." He applied for information on this point to Mr. Hanbury, but without success; "the composition as well as the place of manufacture of Goa powder seem alike secrets." It is a fine yellowish powder, without smell or taste; the mode of application is to dissolve a few grains in vinegar or lime-juice to about the consistence of cream, and to paint this over the eruption and for a little distance beyond its margin on to the sound skin; this may be repeated after a day or two. Two or three applications rarely fail to effect a cure.

In a subsequent number of the same journal, p. 547, Mr. Gaskoin, of the British Hospital for Diseases of the Skin, says that he has experimented with this powder, and has not been altogether satisfied with the results. He states, that it causes considerable irritation of the skin; he has, however, been in the habit of rubbing in the powder instead of merely painting it over the surface.

In the *Medical Times and Gazette* of March 6, Dr. J. L. Patterson, of Edinburgh, publishes an interesting letter from Dr. Da Silva Lima, of Bahia, in which the mystery as to the composition of Goa powder seems to be satisfactorily explained. He says that the powdered medulla of a tree, called in Brazil araroba, is there a popular remedy for herpes circinatus and other similar affections. The tree which furnishes this powder grows only in the interior of the empire, and has not yet been botanically identified; it belongs, however, to the natural order Leguminosæ. The powder is known throughout South America as po' di Bahia (Bahia powder), and is also exported in considerable quantities to Lisbon, whence it is probably reshipped to the Portuguese settlement Goa, and thence distributed over India under a new name. The physical properties and therapeutic effects of araroba

powder and of Goa powder seem to be identical, except that the latter is less energetic, owing no doubt to adulteration. Dr. Da Silva Lima recommends the following formula: Araroba powder, gr. xx.; acetic acid, ♏x.; benzoated lard, an ounce. He has found it very efficacious in the parasitic skin diseases mentioned by Dr. Fayrer and also in mentagra.

Action of Eserina in Chorea.—Dr. E. Bouchut (*Bull. Gén. de Thérap.*, April 13) records the results of four hundred and thirty-seven observations upon the action of eserina (the active principle of calabar bean), particularly in the chorea of children.

He finds that this alkaloid, while diminishing muscular contractility, augments that of the smaller vessels. It may be employed hypodermically or by the stomach, and should be given fasting. It may be given hypodermically in the dose of one-twentieth to one-twelfth of a grain, and, as its effect only lasts one to three hours, the dose may be repeated until one-fourth to one-third of a grain is given in twenty-four hours.

The effects of eserina are observed within a few minutes from its administration, and these are constant in the dose of one-twentieth to one-twelfth of a grain. It usually produces paleness, with contraction, occasionally followed by diminution of rate in the pulse. Nearly all the children to whom eserina was administered experienced malaise, burning pains in the epigastrium, with gastralgia, nausea, and rejection of stringy sputa.

Eserina occasionally causes bilious vomiting; it does not modify the temperature sensibly. In the doses above mentioned, eserina never produces colic or diarrhœa. Given internally, it usually produces no effect upon the pupil. It frequently causes profuse perspiration of the face and body. Paresis, and occasionally transitory paralysis of the diaphragm, are among the most serious and painful phenomena produced by this remedy.

When the action of the eserina is spent, the patients return to their normal condition, and the substance does not seem to have any consecutive effect. It is not found in the urine, at least after administration in these small doses. Given in chorea, eserina arrests the movements while its effects last, and moderates them little by little in the intervals, so that this disease is cured, on the average, in about ten days. The effects of the remedy are more certain when it is given hypodermically.

Dr. Bouchut has never seen tremor or convulsions produced by the use of eserina, and thinks it probable that these symptoms are not likely to be brought on unless where the remedy has been employed in large and toxic doses.—*Medical Times.*

Bromide of Iron in Chorea.—Professor Da Costa, in a recent clinical lecture on this subject (*Medical and Surgical Reporter*) says: "Having now used it for three or four years, my experience, from the treatment of a large number of cases, giving abundant opportunity to witness its good effects, induces me to like it better than any other one article in the treatment of chorea. It should be given in increasing doses, never commencing with less than five grains for a child, and rapidly increasing the dose to twenty. It may be given in plain syrup and water, in the form of a pill, or better, in an effervescing powder. It not only affects the chorea, but also impresses the nervous system as a sedative, quieting it, and giving the patient rest. It is also a valuable agent in treating the incontinence of urine in children. It was in a case of this kind, complicating chorea, that I first observed its value; being surprised and pleased to see that, as the symptom which led to its administration improved, the chorea also diminished and soon disappeared. Since then I have used it almost continuously. Local chorea, or clonic muscular spasm, such as twitching the eyelids, etc., in hysterical women, are sometimes cured by this drug after the failure of other remedies. In answer to the question whether it is the bromide or the iron that benefits, I think it is the combination; that neither *alone* accomplishes the result; for you will find it to benefit cases that have previously taken iron without improvement; and as regards the other bromides, we certainly cannot claim for them any especial value in chorea, as they frequently disappoint us. The remedy occasionally fails, as all remedies sometimes do in this obstinate affection, but it certainly is one of the most valuable agents we possess for the treatment of chorea."

Arsenic in Chorea.—Dr. John K. Spender writes to the *British Medical Journal* of May 15, that he can confirm what Dr. Smith says about the value of arsenic when given in comparatively large doses, for the treatment of chorea. He goes still further in asserting that he believes that acute chorea may now and then be beneficially treated with this medicine, and cites the case of an adult female who was suffering from chorea brought on by over-work and irregular meals. After four days of unsuccessful treatment by ordinary means, he began the administration of seven minims and a half of *liquor arsenicalis* four times a day. In a little over twenty-four hours the improvement was marked, and at the end of forty-eight hours more the malady was virtually gone. The medicine was continued with one or two intermissions, and two months later (at the time of writing) was being taken in doses of six minims twice daily with a little laudanum, and with a grain of powdered opium at bed-time.

Phosphide of Zinc.—At a recent meeting of the Obstetrical Society (*Lancet*, February 27) Mr. J. Ashburton Thompson communicated a short paper exempifying the advantage of employing phosphide of zinc in the treatment of chlorosis and anæmia. It succeeded in relieving the symptoms where iron had failed, and that rapidly. Phosphorus was of great value in the treatment of patients recovering from uterine hemorrhage, and in all cases of anæmia, and seemed to exercise a specific influence upon the neuralgia so often met with in these cases, encouraging the general nutrition of the body. Free phosphorus is not the treacherous poison it has hitherto been considered to be. It is a fatal and potent poison, it is true, but its therapeutic effects may be obtained with precision and perfect safety. If proper formulæ be employed, no apprehension of unexpected or uncontrollable poisonous effects of a therapeutic dose need hinder its general employment.

Dr. Routh said it might be known to some members of the Society that had made several inquiries on the employment of phosphorus. In some cases it produced marvels, especially in cases, like those detailed by Mr. Thompson, due to deficiency of phosphorus in the system. But it occasionally acted injuriously, by producing headache and giddiness; and in a few cases (of idiosyncrasy perhaps) it acted as a deadly poison, even in the first dose, sometimes immediately producing vomiting and syncope. The safest preparation was the phosphide of zinc; but it was a medicine always to be closely watched when given.

Dr. Tilt inquired what preparation of phosphorus Mr. Thompson recommended.

Mr. Thompson, in reply, said Dr. Routh had revived the old objection, not because it was a poison, but because we cannot calculate the results. These arose from decomposed phosphorus.

Dr. Playfair inquired whether the zinc phosphide was not insoluble in pill.

Mr. Thompson replied that some acid tonic given simultaneously would serve to assist in the decomposition.

The Therapeutics of Ergot.—The committee on therapeutics of the Chicago Society of Physicians and Surgeons, reports as follows respecting aqueous and alcoholic solutions of ergot:—These two differ in their effects upon the circulatory apparatus. The aqueous solution excites the activity of the cardiac inhibitory centres, and the vasomotor centre in the medulla; it slackens the pulse, narrows the calibre of the small arteries, and increases the blood.pressure. Very large doses paralyze the heart at once, and so effectually that the induced galvanic current fails to restore it. These effects on the heart and

vessels are not at all produced by the alcoholic solution. The latter produces symptoms akin to those of æro-narcotic poisoning, viz.: irritation of the mucous membrane of the stomach and bowels, tonic cramps, and agitative violent spasms—symptoms which cannot be produced by aqueous solutions of ergot.

Ergot as an Antidote for Excessive Secretion of Milk and Inflammation of the Breast.—A gentleman rejoicing in the unpronounceable name of J. Schtscherbinenkoff has made the interesting observation (*Centralblatt für Chirurgie*, May 8, 1875) during an epidemic of secale cornutum in the district of Simbirski, that amongst the symptoms of ergot-poisoning is the diminution or complete arrest of the secretion of milk in lactating women. The same result was found to occur in cows that had been fed on meal which contained ergot, or that had been littered with carelessly threshed straw which still contained some affected ears. Schtscherbinenkoff conceived the idea of employing it as a remedy in cases of threatened abscess of the breast, and carried it out in many cases with great advantage. Two multiparæ who had suffered at each previous confinement from abscess of the breast, took some of the drug with the happiest result, as soon as swelling began to appear, accompanied by congestion of the gland with milk. He has also administered ergot and quinine, in doses of three grammes [?] of each, twice or thrice a day in cases of so-called milk-fever, and has found the drug useful in cases of swelling of the breast accompanied by fever in other than puerperal women, as well as in those where it is required to wean the child either at the normal or at an earlier period. He has exhibited as much as a drachm of ergot daily for a week without observing any unpleasant result.—*Chemist and Druggist.*

Ergot in Cystic Paralysis.—Dr. J. Williamsky (*Centralblatt für Chirurgie*) made some experiments with ergot upon the bladders of dogs and rabbits, in which he observed that immediate contraction of that organ ensued, and continued for several seconds. He afterward employed it in the form of injections of the fluid extract in two cases of paralysis with the following results: The first was a marked paralysis occurring in a maiden lady of forty-six; division of a cicatrix between the posterior wall of the bladder and the neck of the uterus proved ineffectual. A small quantity of the fluid extract was then injected daily into the previously cleansed bladder, and a complete cure was effected in fourteen days. The second was a case of acute cystic catarrh with inability to completely empty the bladder. Three injections at intervals of twenty-four hours afforded entire relief.—*The Clinic*, May, 1875.

Ergot in Acute Mania.—Dr. Van Andel has employed a solution of ergotin in alcohol and glycerine hypodermically, in the above-named condition, he states, with satisfactory results. The ergot, he believes, contracts the cerebral vessels.

Value of Quinine in Sciatic Neuralgia.—Dr. D. I. Mackenzie (*Lancet*, March 6) had under his care a woman in whom sciatic neuralgia became developed, subsequent to injury received in a fall, by which the left thigh beneath the gluteal fold had been severely bruised. Three weeks after the accident the patient was seen by Dr. M., who ordered opium externally and internally, with hot turpentine fomentations. After two days a mixture containing ten grains each of iodide and bromide of potassium was ordered, and this treatment was continued for two or three days with some relief. At the end of that time it was observed that the disease had assumed a decidedly intermittent character, coming on in excruciating paroxysms at night. The bromide and iodide were then suspended, and quinine was given, thirty grains in divided doses, on each of the first two days, the effects being carefully watched. On the third day the amount was diminished to fifteen grains. The large doses caused great deafness and noise in the ears, but the improvement was well marked. During the next few days quinine was administered only when the neuralgic symptoms were urgent; and on the 5th, for the first time, the patient got out of bed for a little. On the 7th, as the paroxysmal pain had given place to a constant aching, the iodide and bromide were resumed, but the quinine was again found to be necessary. From that date until the 19th, quinine was given nearly every night in ten-grain doses, and blisters, which were found very useful, were occasionally applied over the painful parts. During that time the symptoms were such as to leave no doubt of the efficacy of quinine. The pain began every morning about one o'clock; but if the patient was asleep it was not sufficient to awaken her until between two and three. If taken at ten P.M., the quinine did not entirely prevent the paroxysm. If taken at one A.M., it prevented it entirely. If the dose was not taken until three, the patient suffered for about half an hour after taking it, and then fell asleep. In consequence of the experience thus gained, the ten-grain dose of quinine was latterly left every night at the bedside for her to take when she felt the pain come on.

The improvement continued up to date of report, with every prospect of entire recovery.

The State of the Pupil during Anæsthesia.—MM. Budin and Coyne contribute to the *Archives de Physiologie*, No. 1, 1875, a communication on this subject, accompanied by illustrative cases. From

their observations and researches they draw the following conclusions:

1. The administration of chloroform causes a series of modifications in the pupil which bear a relation to the state of sensibility.

2. During the period of excitation the pupil is dilated.

3. This period passed, the pupil becomes progressively contracted, remaining sensible to excitations.

4. During the period of profound surgical anæsthesia two phenomena on the part of the pupil are constantly observed: 1, an absolute immobility of this organ; 2, a state of contraction. There is a relation between the absolute insensibility of the subject and the contraction with immobility of the pupil; between the return of sensibility and the dilatation with mobility of this organ.

5. The state of the pupil may, then, from the point of view of sensibility, serve as a guide in the administration of chloroform.

6. Gradual dilatation of the pupil supervening during an operation indicates that anæsthesia is less profound, and that sensibility is returning.

7. During operations of long duration, if it is desired that the patient should be completely insensible the anæsthesia should be so managed that the pupils should remain constantly contracted and immobile.

8. Efforts at vomiting may bring about dilatation of the pupil, cause insensibility to disappear, and bring about awakening; it annihilates in part the effects of the anæsthetic.

9. It is important not to confound true chloroform-anæsthesia with asphyxic anæsthesia; the latter causes different phenomena on the part of the pupil.

10. the condition of the iris, although it may serve as a guide for the direction of anæsthesia, does not indicate the imminence of accidents. The pulse, the respiration, and the general condition of the patient must be carefully watched by the administrator of chloroform. —*Medical Times.*

Subcutaneous Injection of Strychnia in Incontinence of Urine.—Dr. Kelp, director of the lunatic asylum at Wehnen, near Oldenburg, describes the results of subcutaneous injection of strychnia in two cases (*Deutsches Archiv für Klin. Medicin*, Band xiv., Heft 3 and 4). One case was that of a girl aged 16, who was admitted with *melancholia stupida*, and was discharged cured at the end of about a year and a half. She was small and feeble, and had been badly cared for at home. From childhood, she had suffered from nocturnal incontinence of urine. Small doses of strychnia,

given internally, produced no effect. But, after the injection of one-sixteenth of a grain of nitrate of strychnia dissolved in water (one grain in two drachms) in the sacral region, the enuresis ceased, and did not return for some days. The injections were repeated from December 17th, 1867, to April 3d, 1868, whenever the enuresis returned; it appeared at gradually increasing intervals, and at last ceased. The dose of strychnia was increased to one-sixth of a grain. During the whole time not more than four grains were used. For a year after her discharge, she resided near the hospital, and was occasionally troubled with incontinence of urine, which was removed by a repetition of the remedy. She has since married, and has not come under Dr. Kelp's notice; from which he concludes that the enuresis has not returned. The second patient was an imbecile girl aged 20, who had suffered from enuresis from childhood. The treatment was the same as in the former case, and the result was as good; but Dr. Kelp does not know whether the result is permanent, as he has not heard of the patient since she left the asylum. The treatment was continued for about two years, during which about ten grains of strychnia in all were used. The intervals between the attacks of enuresis varied from some weeks to a few days. The usual dose was one-seventh or one-eighth of a grain; but, even when this was used daily, no general action on the system was observed.—*The British Medical Journal.*

On the Treatment of sudden Intestinal Occlusion by Opium.—M. Antoine Tariote, in *Thèses de Paris*, No. 426, 1874, relates two cases which occurred in M. Moutard-Martin's practice, in which appearances of intestinal occlusion that had shown themselves suddenly quickly disappeared under the influence of opium given in large doses. The following draught was given: Thebaic extract, ten to fifteen centigrammes; white emulsion, 125 grammes; syrup, thirty grammes; a teaspoonful to be taken every hour until symptoms of narcotism appeared.

M. Moutard-Martin has given as much as thirty centigrammes of extract of opium in one day.

When action of the bowels takes place, the medicine is discontinued. M. Tariote concludes that intestinal occlusions may be divided into two very distinct categories: 1. intestinal occlusions of slow origin, caused either by simple accumulation of fecal matters, or by paralysis of the intestine or diminution of its size in consequence of the presence of foreign bodies, stricture and compression; 2. Intestinal occlusions which make their appearance very abruptly and rapidly, arising from true internal strangulation, invagination, re-

troversion or twisting of the intestine. In gradual intestinal occlusion, opium can only be used to overcome the pain or sufferings of the moribund patient. In sudden intestinal occlusion, if there be no well-confirmed internal strangulation, opium employed from the commencement, concurrently with applications of ice to the abdomen or blood-lettings, calms the local irritation and the resultant spasm. It also quiets the accidents arising from the general irritation, anxiety, small pulse, chilliness, etc. This treatment may by itself re-establish the circulation of the gases. The re-establishment of the circulation may be advantageously hastened by the administration of a purgative. —*London Medical Record.*

Hypodermic Effects of Atropia and Morphia.—The following conclusions arrived at by Drs. Mitchell, Keene, and Morehouse, of Philadelphia, appear to be well established:

1. Conia, atropia, and daturia have no power to lessen pain when used hypodermically. 2. Morphia, thus used, is of the utmost value to relieve pain, and is most potent in certain forms of neuralgia, the nearer it is applied to the seat of the suffering. 3. Morphia lowers the pulse slightly, or not at all. Atropia usually lowers the pulse a few beats within ten minutes, and then raises it twenty to fifty beats within an hour. The pulse finally falls about the tenth hour below the normal number, and regains its healthy rate within twenty-four hours. 4. Morphia has no power to prevent atropia from thus influencing the pulse; so that, as regards the circulation, they do not counteract one another. 5. During the change of the pulse under atropia, the number of respirations is hardly altered at all. 6. As regards the eye, the two agents in question are mutually antagonistic; but atropia continues to act for a much longer time than morphia. 7. The cerebral symptoms caused by either drug, are to a great extent capable of being overcome by the other, but, owing to the different rates at which they move to affect the system, it is not easy to obtain a perfect balance of effects; and this was made the more difficult from the fact already mentioned, that atropia has the greater duration of toxic activity. 8. The dry mouth of atropia is not made less by the coincident or precedent use of morphia. Atropia does not constipate, and may even relax the bowels; morphia has a reverse tendency. 9. The nausea of morphia is not antagonized or prevented by atropia. 10. Both agents cause dysuria in certain cases, nor is the dysuria occasioned by the one agent relieved by the other. Atropia has no ability to alter or lessen the energy with which morphia acts to diminish sensibility or relieve the pain of neuralgic disease. 13. As regards toxic effects on the cerebral organs, the two agents are mutually anti-

dotal; but this antagonism does not prevail throughout the whole range of their influence, so that in some respects they do not counteract one another; whilst, as regards one organ—the bladder—both seem to affect it in a similar way.—*Pacific Medical and Surgical Journal.*

Arsenic in Diabetes Mellitus.—Dr. Samuel V. Pap contributes to the *Wiener Med. Presse*, Nos. 13 and 14, the results of his experience in the treatment of diabetes, particularly as regards the use of arsenic in this affection. He finds that this remedy exercises a decided influence in diminishing the pathological excretion of sugar, whether this be due to excessive sugar formation in the system, or arrested metamorphosis of the normal sugar. In many cases the use of arsenic causes the sugar to disappear entirely from the urine; naturally the various other symptoms of diabetes—thirst, dryness in the mouth, increase in the amount of urine, weakness, etc. The favorable effect of arsenic is more noticeable in those lighter cases of diabetes where the sugar present in the urine does not rise above four per cent. The diminution or disappearance of the sugar takes place even while mixed diet is used, but at the same time it is advisable to use as little starchy food as possible. After the use of arsenic has been suspended, months may elapse before the diabetic condition again makes its appearance; nevertheless, the use of this remedy does not protect against relapse. No unpleasant effects are observed from the prolonged use of the arsenic; the appetite remains unaffected, and even in many cases is improved. As a contra-indication may be mentioned the highest grade of one disease with progressing pulmonary tuberculosis. The arsenic was administered in the form of Fowler's solution, beginning with three drops in twenty-four hours, and gradually increasing the dose to twenty drops per diem.—*Medical Times.*

The Physiological Effects of Salts of Dinitrobenzole.—At a meeting of the Königsberg (Prussian) Verein für Wissenschaftliche Heilkunde, on February 23, 1874 [see report in the *Berliner Klinische Wochenschrift*, for January 11, 1875], Herr Jaffe communicated the results of some experiments made by him in conjunction with a student named Donchin, on the physiological effects of salts of dinitrobenzole ($C_6H_42(NO_2)$). The test employed was a modification of a very sensitive one for carbolic acid lately proposed by Jacquemin; and they had demonstrated that after the ingestion of dinitrobenzole, whether by mouth or subcutaneously, even in very small doses, carbolic acid can always be obtained from the blood and urine. It is not quite clear that it exists as such in these fluids, as it may possibly be formed during distillation out of undecomposed dinitrobenzole.

These experimenters also noticed in rabbits thus poisoned that the muscular tissue of the heart retained its irritability many hours after death, just as Cunze has shown to occur in poisoning by arsenious and arsenic acids. Only the auricles, particularly the right, continued their spontaneous movements as long as nine or ten hours after death. These phenomena were only observed in cases where the animals died soon after taking the poison, from asphyxia. In protracted cases the heart became gradually paralyzed, and after death was found immediately both motionless and devoid of irritability. If Cunze's explanation be adopted, that these phenomena are to be attributed to the power of preventing fermentation and putrefaction possessed by arsenical acids, the same phenomena in dinitrobenzole poisoning should probably be attributed to carbolic acid. As a matter of fact, it was so in poisoning by pure carbolic acid, and the contractions of the right auricle continued more than ten hours after death. All antiseptic and antizymotic substances apparently act in the same manner; and Herr Jaffe had proved this most remarkably in the case of strychnine.

Liquor Ferri Perchloridi in Cancerous Ulceration of the Uterus.—Dr. Gibb (*British Medical Journal*) states that he was induced to employ the solution of the perchloride of iron in such cases from observing its beneficial action in an obstinate case of hemorrhage arising from enlarged vascular granulations in the uterine cavity. He gives the history of four cases in which the application of the solution was more or less useful, but he draws a distinction as to the chances of success between the cases where the cancer is hard and embraces the whole of the uterus, and those where the disease is epitheliomatous, spreading over the vagina, and throwing out toward the surface exuberant vascular fungoid granulations.

In the latter Dr. Gibb thinks that the application of cotton-wool soaked in the solution of iron clears away the greater part of the diseased growth, allows reparative efforts to be made by the comparatively healthy structures underneath, and hastens cicatrization. When the disease is purely epithelial and chronic and rodent in character, and confined to the surface, the treatment described has done most good, and appears to Dr. Gibb to cure even bad cases.

The application rarely causes pain, except where the solution has accidentally flowed over the adjacent parts, which have been thereby blistered and painfully excoriated. He therefore takes care to limit the application to the diseased part alone. He has always used the strongest pharmacopœial solution undiluted, as he wishes to secure a caustic action. At first he applied it on a piece of sponge or lint,

but finally he found cotton-wool to answer best, as this sucks up any quantity that may be required, parts with it easily, and can be moulded into any form, so as to fill a cavity or cover over and adhere to any growth.

Relieving Difficult Respiration in Anæsthesia.—Dr. Jacob Helburg, of Christiania (*Berlin Klinische Wochenschrift*, No. 36, 1874), proposes a substitute for the present method of relieving difficult or impeded respiration during anæsthesia. The use of the gag to pry open the mouth, and of the forceps to drag forward the tongue, is frequently attended with some injury to the mouth of a permanent character, or, at least, may be followed by a sense of discomfort lasting for some days. His procedure consists, simply, in dragging forward the lower jaw-bone, and is described by him as follows: "Standing behind the recumbent patient, the two thumbs of the operator are placed upon the symphysis of the lower jaw, while the index fingers are hooked behind the ascending ramus of the jaw. The bone is then pulled forcibly forward (anatomically). The force should be applied as if the operator intended to lift the patient up by his jaw-bone. During anæsthesia, the head of the bone slips forward with a perceptible jerk, and the whole lower jaw overlaps the upper jaw. As soon as this is accomplished, which is easily done in children, a deep, full inspiration follows immediately, and continues as long as the bone is held in position. The author supposes that the epiglottis is thus lifted off the rima glottidis.—*Boston Medical and Surgical Journal.*

Action of Cantharidine.—The *Tribune Médicale*, No. 330, 1875, contains a note on this subject, read before the Société de Biologie, of which the following is an extract. It has long been believed that cantharidic preparations in general, and cantharidine in particular, have a sort of elective attraction for the genito-urinary organs. To prove, however, that cantharidine introduced into the stomach passes into the blood, and that it passes in sufficient quantity to cause grave lesions, eight-tenths of a grain of cantharides was administered to a healthy dog by the stomach. Reiterated vomiting of white, frothy matter expectorated with difficulty and soon becoming sanguinolent, dilatation of the pupil, tendency to immobility, and stupor, resulted. Under these conditions the crural artery of this dog was made to communicate with that of another, and soon after, dilatation of the pupil was observed in the second animal. Slight dyspnœa was the only other symptom during life; but, after it had been killed, post-mortem examination showed generalized congestion of the lungs, sub-pleural ecchymoses, together with a number of emphysematous nodules.

Large ecchymoses were also observed on the surface and within the ventricles of the heart, as well as localized apoplectic nodules in the liver, injection of the intestinal mucous membrane, conjestion of the cortical renal substance, and injections of the vesical mucous membrane, particularly at the neck.—*Med. Times.*

On the Mode of Action of the more Common Emetics.—Dr. H. Chouppe's researches (*Archives de Physiol.*, No. 1, 1875) lead him to the following conclusions:

The mode of action of the more common emetics is not the same for all, and if the phenomena which accompany or precede vomiting are closely inquired into, the greatest differences will be observed.

Ipecac and its alkaloid emetine, no matter by what way they may be introduced into the organism, always provoke vomiting by direct irritation of the terminal filaments of the pneumogastrics in the mucous membrane of the stomach. Tartar emetic and antimony have a double action; they may act upon the gastric mucous membrane, but also directly upon the medulla. There are, however, differences between these two medicaments; tartar emetic acts more quickly upon the stomach than upon the medulla; apomorphine more rapidly on the nervous centres than upon the gastric mucous membrane. The best proof of this which can be given is, that the dose of tartar emetic sufficient to cause vomiting when injected by the veins must be larger than when it is introduced by the stomach. With apomorphine, on the contrary, the maximum effect is produced by injection into the general circulation.—*Medical Times.*

The Action of Nicotine.—In the report of the West Riding Lunatic Asylum, Dr. Benham has a paper on this subject. He administered nicotine to man and the lower animals, finding that it killed the latter, not by paralyzing the heart, but by stopping the respiration. Indeed, he says, it quickens and strengthens the heart's action, and recommends its use for that purpose. He found that nicotine contracted the pupils, but its other effects on man were most variable.

Therapeutic Action of Valerianate of Caffeine.—Dr. Paret, in his *Thèse de Paris*, 1874, No. 464, describes this substance as a product crystallized in white flakes, having a very disagreeable odor like decayed cheese. He has administered it in the form of ten centigramme pills, of which he gives from two to three. It may also be given as a syrup, containing ten centigrammes of valerianate of caffeine. Dr. Paret comes to the conclusions: 1. That valerianate of caffeine has, in some cases, appeared to put an end to the nervous vomit-

ings coexistent with hysteria. 2. That this medicine had given to invalids increase of a decided appetite, and a physical as well as moral strength which they had not previously possessed; 3. That the vomitings of consumptive patients had not been checked by it. It has also been tried in the sickness of pregnancy, but without favorable results. It appears that Dr. Labadie-Lagrave has twice used the syrup of valerianate of caffeine for infantile whooping-cough, and that this medicine, taken in doses of two fluid drachms per diem, produced a very marked improvement. The fits of coughing, which at first amounted to fifteen daily, fell to four, after a week's treatment.—*London Medical Record.*

Action of Camphor on Plants.—In 1798, Benjamin Barton put a tulip into a solution of camphor. The flower grew vigorously, and surpassed those put into ordinary water. A yellow flag, which had withered, was sprinkled by Barton with camphor water, when it was quickly restored to life. M. Vogel, of Munich, has repeated these experiments in a new way, and reported the result to the Munich Academy. Distilled water, into which camphor had been put, became a tonic of extreme energy when applied to vegetables. Two branches of Syringa, in bloom, of equal height and vigor, were introduced, one into ordinary water, the other into camphorated water, and a considerable difference in their appearance became quickly apparent. At the end of twelve hours the branch placed in pure water had drooped, and was almost withered, while the branch dipped in the camphorated water was erect, and in no way faded; some of its buds blossomed, and it was only at the end of three days that the flowers and leaves commenced to fall.

Old seeds, whose germinative force is feeble compared with that of young seeds, germinated sooner under the camphor treatment than those which were plunged under pure water.

There is little doubt that by the use of camphor we may hasten the germination of grain, and stimulate the growth of feeble plants.—*La France Médicale.*

Bromide of Potassium in Migraine.—One of the essential characters of idiopathic migraine is its tendency to periodicity. This periodicity may be variable, and is often monthly. The migraine is always at first hemicranial, and is then also accompanied by a peculiar sense of heaviness of one of the ocular globes, or over one of the orbits. It is this prodromic sensation that indicates the opportune time for efficacious intervention. Administered then, and in sufficient doses, the bromide of potassium arrests and prevents migraine, while,

if the paroxysm is allowed to set in, it will scarcely mitigate the severity of the pain. It is from want of attention to this point that the bromide has caused disappointment. It should be administered in doses of from five to six grammes for an adult male, four for a woman, and from two to three for a child, given in a cup of well-sweetened infusion of lime-tree flowers, aromatized by a drop or two of mint oil. It should be swallowed by successive mouthfuls within a quarter of an hour or twenty minutes.—*Med. Times and Gaz.*

Action of Bromide of Lithium.—M. Rouband draws the following conclusions from his investigations of this drug. Bromide of lithium, as a medicine, has a double effect. It possesses, in a high degree, those lithotriptic properties attributed to the salts of lithia, and in addition, like other bromides, affects reflex sensibility most energetically. It has not, however, the inconvenient action on the heart displayed by bromide of potassium. Consequently, its place in therapeutics is in the first rank among lithiasics and among sedatives, and its action is particularly valuable in the uric acid diathesis, which is accompanied by painful symptoms, and in neuroses which are so often complicated by the presence of uric acid.—*Bull. Gén. de Thérap.*, April 30.—*Medical Times.*

Bromine in Pertussis.—Dr. Vogelsang, of Brel, in Switzerland, finds that one or two scruples of bromine, as much bromide of potassium, to a tumbler of hot water, placed in the room of a child suffering from whooping-cough, affords it great relief. The mixture should be renewed three or four times a day.

Thymol as an Antiseptic and Antifermentative.—Herr L. Lewin has lately made some experiments in Professor Liebreich's laboratory in Berlin, on the antiseptic and antifermentative properties of thymol. This substance, the formula for which is C_{10} H_{14} O_2, belongs to the benzol group. It forms white crystals of a highly aromatic odor; a solution of one part in one thousand of hot water has a neutral reaction, and is of sufficient strength for all purposes. Comparative experiments with carbolic and salicylic acids showed that thymol possessed much greater power than either of these acids, in arresting fermentation in a solution of sugar after the addition of yeast. The addition of thymol to milk, caused coagulation to appear twenty days later than in milk to which a similar quantity of water had been added; and at the end of five weeks there was still an aromatic odor, and no trace of vegetation. While filtered egg-albumen underwent decomposition in three or four days on exposure to the

air, albumen to which thymol-water had been added, did not present the slightest sign of putrefaction at the end of eleven weeks, and the aromatic odor was still perceptible. Putrid pus treated with the thymol lost the fetid smell, and remained in this state until it dried up at the end of about five weeks. Herr Lewin also found that thymol arrested putrefactive change in brain substance for five weeks. With regard to the effects of thymol on the living animal, Herr Lewin says that a watery solution of one part to one thousand parts, has an astringent effect on the mucous membrane; and that three or four table-spoonfuls can be taken daily without inconvenience, with the effect of arresting fermentative changes in the stomach. A remarkable effect produced on frogs by immersion in the solution, was total cutaneous anæsthesia. Experiments on artificial digestion showed that thymol did not in the least interfere with the digestive process. —*British Med. Journal.*

Tincture of Chloride of Iron Locally. — Clarence Foster, M.R.C.S., calls attention, in a recent number of the *Medical Times and Gazette*, to the external use of the tincture of iron in erysipelas and other forms of local inflammation. It is stated that in scrofulous swellings of the neck, its discutient properties are far superior to those of iodine, and where a puerperal breast or inguinal gland in the male has threatened to end in suppuration, the early use of the tincture every other day or so with a camel's-hair brush, has been sufficient to effect resolution. The remedy may be advantageously applied to swollen and painful joints in acute rheumatism, to an inflamed surface surrounding an unhealthy ulcer, or along the course of absorbents when irritated by a recent ill-conditioned wound, or in cases of ringworm, for which ink, as a domestic remedy, has long enjoyed a popularity which was not altogether undeserved.

Morphia for Herpes Zoster.—Dr. Giné records a case of herpes zoster affecting the dorsal region at the level of the seventh vertebra, and extending round the left side. In addition to the severe pain of the skin, the patient complained of deep-seated pain, increased on pressure, affecting the knees about half an inch below the eruption. Dr. Giné, believing the case to be one of neuralgia of the seventh intercostal nerve, injected subcutaneously the third of a grain of morphia in fifteen drops of water. This was followed by immediate relief of the itching, and rapid resolution of the inflammation. In four or five days, aside from desquamation of the skin, no remains of the affection existed.—*La France Méd.*, and *The Practitioner.*

Treatment of Laryngitis by Veratrum Viride.—Dr. Handfield Jones records the case of a night-nurse, aged 24, who on July 27,

1874, was attacked at night with sore throat. The next morning the dyspnœa was so great as to make it probable that tracheotomy would be required. Some leeches were applied with relief. When seen by Dr. Jones she was suffering much, but breathing fully and deeply. The respirations were 21; temperature 102°; pulse 120. Laryngoscopic examination was very difficult, but the epiglottis appeared to be normal, the larynx reddened, and the chordæ close together. The diagnosis was laryngeal catarrh, with great hyperæsthesia of the sensory nerves; and Dr. Jones recommended a dose of chloral, and Graves' hot sponge to the throat. At 4 P.M. she was somewhat, but not much better; voice rather hoarse; much anxiety of facial expression. Four minims of tincture of veratrum in a little water were now ordered every hour.

Seven doses were taken when sickness came on, but she took two more doses at intervals of several hours. Next day she was much relieved. She was placed in a steamed tent. The laryngitis was succeeded by a good deal of pneumonic congestion, but all danger was at an end in three days. Dr. Jones comments on the free respiratory movements that were present during the height of the disease, and considers that they were due to the swelling of the laryngeal membrane not being sufficient to obstruct materially the ingress of air, while the impressibility of the afferent nerves of the mucous surface was so much increased by the morbid process that the motor nerves were excessively stimulated, and the inspiratory muscles acted with unusual energy.—*Med. Times and Gazette*, and *The Practitioner.*

On Chloroform in Natural Deliveries.—Professor Pajot, while discussing Dr. C. J. Campbell's work (*Bulletin de Thérapeutique*, vol. lxxxvi., p. 234) comes to the following conclusions. "The place of chloroform in obstetrics is now definitively settled. No practitioner would hesitate to use it with all indispensable precautions in cases of painful operations or abnormal though spontaneous deliveries, unless there be indications to the contrary. True anæsthesia, however, when used in natural deliveries during the periods of the uterine and vulvar dilatation, is a serious and scientific process which admits of discussion; its dangers and inconveniences appearing to exceed its advantages in the opinions of some persons, though there are arguments for the opposite view and it is capable of defence. As to the so-termed semi-anæsthesia, it is a practice as useless as it is harmless, and has no scientific or serious value whatsoever." Such are the opinions of M. Pajot, who, in the *Annales de Gynécologie* for January 15, 1875, likewise attacks some passages in Dr. C. J. Campbell's memoir.—*London Medical Record.*

Balsam Copaibæ in Ophthalmic Cases.—Mr. A. K. Hall, in *The Practitioner* of April, briefly records some cases in which he has found the use of copaiba to be productive of great benefit. In a case of ophthalmia occurring in a syphilitic patient, and in which the whole anterior chamber was filled with pus, two drachms of copaiba were given in mucilage three times daily, with the result of destroying the pain, causing the absorption of the pus, and ultimately curing the patient. Mr. Hall gives it in all cases of iritis and sclerotitis in larger does, and asserts that it speedily causes the pain and inflammation to disappear. In thirty cases of purulent ophthalmia occurring in children, he simply painted the lower eyelids, upper part of the cheeks, and the temples with the pure balsam, and they all got well quickly without damage to the eyes. In threatened mammary abscess, dysentery, chronic rheumatism, and even in indolent leg-ulcers, he has found great benefit to follow its administration.—*Medical Times.*

Comparative Value of Carbolic and Salicylic Acids in Diabetes.—Ebstein and Muller continue (*Beliner Klin. Wochen.*, No. 5, 1875) their researches upon the action of carbolic acid in diabetes mellitus, and add some observations upon the use of salicylic acid in the same disease. They believe that in certain cases of this disease carbolic acid diminishes the proportion of sugar in the urine, together with the various other diabetic symptoms. These cases are probably those which are connected with obesity, and where an anti-diabetic diet is apt to do good.

Carbolic acid is particularly useful in the lighter cases,—those in which the Carlsbad cure does so much good. It does not, however, any more than the latter, protect against relapses; and, indeed, it fails in some cases when this does well.

Salicylic acid seems to be quite powerless for good in diabetes mellitus; although it is less disagreeable to take, yet many patients actually prefer carbolic acid. The latter may be administered in doses of one centigramme or more. It rarely disagrees; in one case occasional burning pain in the œsophagus was noticed. It in no way disturbs the stomach.—*Med. Times.*

The Antiphlogistic Action of Carbolic Acid.—Professor Hueter, of Greifswald, in a report to the third Congress of the German Surgical Society, read a paper on the antiphlogistic action of parenchymatous injections of carbolic acid. He has used this treatment with success in white swelling of the joints, in subacute inflammation of the lymphatic glands, in acute phlegmonous inflammations, and in traumatic erysipelas. The injection fluid consists of a two per cent.

watery solution of carbolic acid. This strength may, however, be increased. Two grammes may be injected at one time.

Hueter has also employed this treatment in commencing inflammation of the bones, before suppuration has begun. He recommends the injection of one or two drachms of the mixture into the medullary cavity, the softened cortical substance presenting no material resistance to the point of the needle. This same solution he has employed for the radical cure of hydrocele, injecting about seven grammes into the tunica vaginalis. Here, as in other cases, the carbolic acid injections show their anæsthetic action, very little pain being caused by the process and no pain following it. In applying this method of treatment to tumors he had no success in the case of lipomas and sarcomata. He succeeded in reducing the size of soft fibromata and myxomata; scirrhous nodules became smaller and painless, and epithelial ulcers were changed into healthy, granulating surfaces.

On the Use of Sulphuret of Carbon in the External Treatment of Chronic Ulcerations.—In the *Journal de Thérapeutique* for Jan. 1875, p. 48, Dr. Evariste Michel relates his trials of sulphuret of carbon in M. Boys de Loury's wards, when Dr. Michel was his house surgeon at Saint-Lazare in 1867 and 1868. The results obtained were most beneficial. Sulphuret of carbon is used like the caustic liquids. In order to obtain the required effect, it is sufficient to touch the ulcerated tissues with a pledget of lint saturated with the liquid in the same way as with most acids. The frequency of the dressings depends on the degree of chronicity of the ulceration; a very old and inactive ulcer will require moistening every day, whilst less frequent applications, every two or three days, will suffice for a more recent and excitable ulcer. Sulphuret of carbon is not a caustic; and its contact with the mucous membrane does not leave any scar. Neither does it produce any discoloration except the amount resulting from its constant use, which characteizes reparation of the skin. It gives acute but only instantaneous pain; and, whilst the suffering consecutive on a somewhat extensive cauterization with acid nitrate of mercury sometimes lasts for many hours, it is rare that the pain due to the sulphuret of carbon is not entirely dissipated in a few minutes. This pain, which is somewhat intense on the first application, is less so at the second, and diminishes in proportion of the use as the dressing is prolonged, and as the cicatrizing process becomes confirmed. M. Michel has never met with the smallest accident which could be attributed to the absorption of the sulphuret of carbon by impregnation; for although, like the majority of volatile substances, it penetrates deeply, it evaporates quickly. He adds that he has always worked on relatively limited

points, and that, for instance, he had never ventured in the treatment of vaginitis to touch the whole of the vaginal mucous membrane.

Metachloral.—M. Dujardin-Beaumetz reports that he finds in metachloral a useful substitute for iodoform in the treatment of ulcers, etc. A serious objection to the use of the latter agent is found in its very persistent and insupportable odor. From this objection the metachloral is entirely free.

Copaiba as a Diuretic.—*The Practitioner* for February contains a communication from Dr. E. L. Dixon, giving his experience in the use of copaiba in cases of ascites from cirrhosis, heart-disease complicated by œdema pulmonum, and heart-disease with albuminuria, ascites, and anasarca.

In each of these cases the administration of the drug was followed by large increase in the amount of urine secreted, and rapid amelioration of all symptoms. The capaiba was administered in the form of capsules. In one case ten to twenty minims were thus given every night, in the other two cases fifteen to thirty minims were administered night and morning.

Dr. Falconer (*Canada Lancet*) feels confident that very few practitioners have given this drug a fair trial in ascites. Passing by cases of cirrhosis and chronic peritonitis, with their accompanying effusions, in which, in re-accumulation after tapping he has succeeded in not only diminishing, but in completely removing the fluid by the use of copaiba; he refers to a case of ovarian dropsy which he treated successfully by the drug. Copaiba is the diuretic, *par excellence*, and never fails in removing the serum through the kidneys, except in chronic albuminuria. It obviates the use of eleterium or gamboge, tapping, or ovariotomy, in many cases.—*Medical Examiner.*

Treatment of Glandular Swellings of the Neck by the Injection of Acetic Acid.—At the Hospital for Diseases of the Throat, Golden Square, London, Dr. Morell Mackenzie is now treating enlarged and indolent glands about the neck, especially in adults, with injections of the dilute acetic acid of the British Pharmacopœia. Seven minims is the quantity injected the first time, and ten minims or more may be used if several injections are necessary. They are made with an ordinary hypodermic syringe. One of the two results may follow the injection. Either the gland suppurates, and the pus is discharged as in an ordinary abscess, or else it disappears gradually by interstitial absorption, without any suppuration whatever. It is impossible to know beforehand whether suppuration will occur. In some cases one injection will excite suppuration, in others several are required. It is stated that

by this means those unsightly lumps, which formerly were treated for months by iodine paint and internal remedies with indifferent success, can now be removed in a few weeks with only trifling annoyance to the patient, and, at the most, with a slight scar.—*Irish Hospital Gazette.*

Hypodermic use of Alcohol in Adenitis.—Schwalbe, of Weinheim, reports one hundred cases of various forms of indolent glandular swellings treated successfully by the subcutaneous injection of the tincture of iodine. Latterly he has used injections of simple alcohol in fifty similar cases, and has found the results equally favorable, and the time required for a cure no greater, and he therefore concludes that the alcohol is the essential remedial agent. He explains its curative action as follows: It establishes a state of chronic inflammation in the connective tissue, causing it to contract by degrees, and thus pressure is brought upon the vessels and the lymphatics are obliterated. These effects, and the consequent hardening of the connective tissue, he proposes to utilize in the treatment of other tumors, and he reports the cure of fatty tumors by the use of such injections, to which some ether was added in order to dissolve the fat. He finds, however, the most important application of his plan in the treatment of cancer by preventing its extension to the neighboring tissues and lymphatic glands. The tumor is first to be isolated, as it were, by causing the connective tissue on all sides of it to become shrivelled. Then the contractive connective tissue, approaching the growth itself, presses upon it, cuts off its blood-supply, and so causes it to disappear by atrophy. Lymphatic glands which are already affected are to be similarly treated. Schwalbe, with Dr. Hasse, claims to have cured three cases of cancer of the breast in this way.

The Remedial use of Sea-Water as a Beverage.—Dr. Lisle, in the *Bulletin de Thérapeutique* says, that the use of sea-water, when continued, will increase the appetite, facilitate digestion, quicken nutritive changes, and augment the proportion of red corpuscles. He therefore recommends it during convalescence from acute diseases; in the apyretic forms of dyspepsia; in neuroses associated with impoverishment of the blood; in scrofulous and tuberculous diatheses, and in diabetes.

Ailanthus Glandulosa in Dysentery.—Dr. Cobert, medical chief of the British Navy in China, extols the bark of the root of this tree as superior to ipecacuanha, or any other drug, in the treatment of dysentery. It is intensely bitter, like quinia, and produces vomiting when freely used. Dr. Robert found the dried bark of the root as good as the recent. The Chinese physicians who employ it give a cup

of the strong infusion twice a day. The tree grows luxuriantly in all parts of the United States, having been introduced for the purpose of shade. It is a very rapid grower, and propagates itself abundantly by shoots from the root, being almost a nuisance in this respect. The tree is quite common in California, and is known as the Ailanthus, or Pride of China. Some further account of its remedial application may be found in the *American Journal of Pharmacy* for June, 1874.—*Pacific Med. Journal.*

Silica in Cancer.—In the November number of the *Edinburgh Med. Jour.* Mr. Fawcett Battye narrates his experience with an entirely new remedy in cancer. This is silica, powdered very fine, and administered internally twice or thrice a day, in one-grain doses, conbined with a third of a grain of morphia. He found it to diminish the pain in a very marked degree, and by the tenth day to disperse it altogether. He does not precisely claim, however, that the patients recovered. They were relieved and benefited, and when they took it continuously, the disease was retarded. No satisfactory explanation of its action is advanced.—*Med. and Surg. Rep.*

Treatment of Catarrhal Jaundice by Electricity.—Dr. Gerhardt, of Berlin, first determines the position of the gall-bladder by percussion at the free border of the liver. This can often be detected by a small rounded prominence at the inferior convexity of the liver, and can easily be made to project. The electrode of a strong inductive electric machine is applied at this point, while the other electrode is applied at the other side of the median abdominal line. Almost always, when the current is powerful, a gurgling sound can be heard, and very often the fæces resume their natural color, and the cure is effected.—*Ber. Klin. Wochenschr.*

Hyperpyrexia in Rheumatism treated by the Cold Pack.—Dr. Stewart Lockie reports (*Lancet*, February 13) a case of acute rheumatism under his care, in which the temperature rose to 104° on the tenth day, 103.6° on the eleventh, and 106.8° on the evening of the twelfth. It was then determined to attempt to reduce the temperature by the application of cold. A vessel of water with lumps of ice in it was brought to the side of the bed, water-proof sheeting was placed below the patient, and sheets wrung out of the ice-water were wrapped around the body, the sheets being wrung out every few minutes as they became warm. A teaspoonful of brandy was administered every quarter of an hour. At the end of fifty minutes the temperature had fallen to 99.6°, when she was taken out and put between blankets. She fell asleep soon after, and when she awoke, half an hour later,

the temperature was 97.8°. Two hours later it had fallen to 96°. It then rose, and during the subsequent days of the patient's illness never (excepting once, when for a few hours it attained 104°) rose above 102.2°. No further cold applications were used, and the patient made a good recovery.

Cerebral Rheumatism treated by Cold Baths.—M. Blachez communicated the following observation to the Société des Hôpitaux (*Bull. Gén de Thérap.*, February 28). A woman thirty years of age was attacked by the first symptoms of rheumatism on the 14th of January. On the 16th the rheumatism was fully developed. On the 18th the articular pains disappeared, the fever becoming more intense. On the 19th delirium supervened, the pulse rising to 118. On the 20th, condition worse; violent delirium, pulse 156, temperature 107.2°; the case seemed desperate. After consultation, the first bath, reduced by ice to 78°, was administered. The patient, after remaining immersed for an hour and a half, showed a pulse of 96 and a temperature of 101.1°.

From the 12th to the 24th twelve baths were given, the temperature of these baths ranging from 73.4° to 77°. Under the influence of these a gradual amelioration of the patient's condition was brought about. On the 25th the temperature was 99.3°, and the pulse 96; consciousness returned by degrees. By the 27th, the patient was convalescent, and on the 5th of February she went out for the first time. —*Medical Times.*

Carbolic Acid as an Anthelmintic.—In a case of tænia this acid was given at first in doses of six grains four times a day; but this proving ineffectual, two grains were ordered every hour, with the result of expelling the worm, head and body, on the third day. This acid has been recommended and employed successfully by Decal, Lemaire, and others, in the form of clysters, for the relief of ascarides; but this is, we believe, the first instance of its use in this field.—*Allg. Wien. Med. Zeit.*

Logwood as an Antiseptic.—M. Cotton, of Lyons, claims for the decoction of logwood strong antiseptic properties. Fermentation cannot take place, and alcoholic fermentation is at once arrested; while decomposing urine at once loses its putrid odor after the decoction is added, and many days afterwards still exhibits crystals of urea. He believes this anti-putrescent quality to be due to the ease with which the hæmatoxyline is oxidized. In another communication he relates a case in which this anti-putrescent effect was exercised during

life. A patient, who frequently passed urine which abundantly deposited ammoniaco-magnesian phosphate, due to the decomposition of urea, was effectually relieved by taking, morning and evening, an infusion of two grammes of logwood, the urine in ten days becoming acid and free of all phosphates.—*Med. and Surg. Rep.*

Chloride of Zinc as an Antiseptic.—Mr. Lister has found chloride of zinc to have the remarkable property, among all antiseptics that he has tried, that a single application of it to a recent wound in a solution of the strength of 40 grains to the ounce of water, although it produces no visible slough, yet prevents the occurrence of putrefaction on the cut surfaces for days together, in spite of the action of the septic material; and if the discharges have opportunity to flow freely away, as after the removal of a tumor of one of the jaws or a portion of the tongue, there may be absolutely no odor from first to last, the divided textures being thus guarded from the bad effects of the putrefaction during the dangerous period before they have been covered by the protecting layer of granulations.—*Medical Times*, from the *Medical Press and Circular*.

Nitrous Oxide in Tuberculosis.—Dr. C. W. Larison (*Cinn. Med. News*, November, 1874) reports a case of miliary tuberculosis, in which, after the failure of all ordinary remedies, nitrous oxide was used with most desirable results. Improvement was very slight at first, but steadily increased until complete recovery resulted. Cutaneous circulation assumed its vigor, muscles performed their functions with greater precision, the pulse became stronger and less frequent, appetite became voracious, weight increased, etc. The amount of gas taken was about five gallons a day at intervals.

Electricity in Amenorrhœa.—Amenorrhœa occurring in women otherwise healthy, is treated by Dr. Althaus with the constant galvanic current, applied as follows; The negative pole of a Daniell's battery of fifty to sixty elements is placed alternately over the right and left ovarian region; the positive over the lumbar vertebræ or the os uteri. Each sitting lasts fifteen minutes.—*Medical Times and Gazette.*

The Physiological Action of Thebaina.—Dr. J. Ott, of Easton, Pa., from his physiological experiments made with thebaina prepared by Merck, arrives at the following conclusions:

1. Thebaina is a tetanoid agent, and pigeons have no special immunity against it.
2. The tetanus is not cerebral, but spinal in origin.
3. The motor and sensory nerves, and the striated muscles are not affected by it.

Bromhydric Acid as a Tonic (*The Peninsular Journal of Medicine*).—Dr. D. C. Wade, after having prescribed bromhydric acid more than sixty times and in a great variety of cases, believes that it is a powerful alterative, a grateful refrigerant and sedative, and that it affects the stomach similarly to the other mineral acids, increasing the appetite, aiding digestion, and acting as a general tonic.

Aconite in Headache.—Dr. Fothergill recommends the use of aconite in congestive headaches attended with coldness of the extremities. The remedy dilates the peripheral blood-vessels, and so relieves those of the cerebrum.

MATERIA MEDICA.

GUARANA, OR PAULLINIA.

BY J. B. FRANCIS.

In 1817 an officer attached to the French embassy at Rio Janeiro brought with him to France a fragment of a product which he had obtained from a tribe of Indians (Guaranas) in Brazil, who were accustomed to make use of it both as an article of diet and as a medicament in a relaxed condition of the bowels. This drug, which received the name of guarana, was brought to the attention of the medical world by Cadet, in a note published in the *Journal de Pharmacie*, Paris, 1817.

No special therapeutic experiments appear to have been made with the drug at this time; and it was not till 1840 that its physiological effects were brought prominently before the profession in France, by Dr. Gavrelle. Gavrelle, who had been the court physician to Don Pedro, Emperor of Brazil, declared that during his residence in that country he had studied the effects of the drug, and did not hesitate to ascribe to it astringent properties fully equal to rhatany; he announced also his success with it in the treatment of nervous affections. Guarana, which had already found a place in the Pharmacopœia of Brazil, came gradually into use in Europe, its employment increasing to the extent that, of late years, as much as thirty tons have been exported per annum. At the Paris Exposition of 1867, samples of this drug were exhibited by Faria, of Para, Brazil, under the name of medicinal chocolate.

Guarana is prepared from the seeds of *Paullinia sorbilis*. The genus *Paullinia*, named after Simon Pauli, comprises about thirty species: they are climbing plants, belonging to the family of the Sapandaceæ, and are found in warm climates in all parts of the globe. *Paullinia Africana* is employed in decoction in Senegambia to arrest the flow of blood. *Paullinia Asiatica* has been used as a febrifuge. *Paullinia Pinnata* flourishes in Brazil and the Antilles; its seeds have a narcotic effect, and are used in these localities for the purpose of stupefying fish.

The plant which furnishes guarana was named *Paullinia sorbilis* by Martius, in allusion to its employment as a drink.

Paullinia sorbilis grows in a wild state to a height of from thirty to forty feet. The plant produces fruit in its third year. It flowers in July, and its fruit is ripe in November. The fruit is about the size of a walnut, and contains five or six seeds. Each stem yields by cultivation from eight to ten pounds of seeds annually, while the plant itself is said to live for forty years.

In October or November, when the seeds have reached maturity, the natives remove them from their capsule and dry them in the sun. A thin skin which covers the seed is then easily removed, by rubbing between the hands. They are then reduced to powder upon a flat stone, which has been somewhat heated. Water is added to the rough powder, together with a little cacao and tapioca, and the whole is made into a paste, into which fragments of seeds are sometimes introduced. The paste is rolled into a cylindrical form, dried in the sun, and afterwards by a slight heat.

These cylinders wrapped with leaves, measuring about 8 inches in length, and weighing from ¾ lb. to 1 lb., constitute commercial guarana.

As prepared by the Indians, guarana has the color of chocolate, and is covered with a sort of crust, produced by its exposure to the heat; its fracture shows little cavities, caused by the shrinking of the mass on drying, with here and there entire seeds, covered by their thin and shining tegument. The odor of guarana is peculiar, but somewhat resembles that of roasted coffee; its taste is bitter, and somewhat astringent; it is very hard, and is reduced to powder with some difficulty; placed in water, it softens, swells considerably, and imparts a brownish color to the liquid.

The first chemical examination of guarana was made in 1826 by Theodore Martius, a brother of the learned botanist of the same name; he extracted from it a crystalline principle, to which he attributed the therapeutic properties of the drug, and gave it the name of guaranin; but in 1840 Berthemot and Dechastelus proved that this crystalline principle consisted of tannate of caffeine. Subsequently, they found in guarana, in addition to tannate of caffeine, the following substances: starch, gum, a resinous matter, a greenish oil, one or more volatile oils, and tannic acid.

The proportion of caffeine is greater in paullinia than in any other of the plants which yield it. Dr. Stenhouse found 5.07 per cent. of caffeine in guarana, while maté or Paraguay tea contained only 1.02 per cent.; coffee, 1.00 per cent., and black tea, 2.13 per cent.

The astringency of guarana adapts it to the treatment of diseases attended with a relaxed condition of the bowels; its bitterness renders its administration useful in divers affections of the stomach,

accompanied with general debility; and the caffeine which it contains, in combination with the astringent principle, gives to guarana its value as a remedy in nervous affections.

Guarana has been recommended in the treatment of diarrhœa, dysentery, gastric inflammation, headache, facial neuralgia, etc. The dose of the powder is from fifteen to thirty grains, repeated at intervals of two hours, if necessary.

In 1840 Dechastelus published (*Bulletin de Thérap.*, 1840) formulæ for the preparation of the various pharmaceutical forms of this drug. It may be administered in the form of a tincture, a fluid extract, in pills, in powder, or as a syrup.

Dechastelus exhausted guarana with boiling alcohol of s. g. 9.020. This was allowed to evaporate spontaneously to a pilular consistence.

The tincture was prepared by dissolving one troy ounce of the solid extract in one pint of warm alcohol (s. g. 0.920).

Dose, one to three drachms.

The syrup may be prepared by softening one troy ounce of the solid extract in a small quantity of warm water and glycerine, and adding one pint of syrup.

Dose, the same as of the tincture.

Mr. J. B. Moore (*Am. Jour. of Phar.*, 1874) recommends the following formula for the preparation of the fluid extract.

Pulv. guarana.....	16 troy ozs.
Alcohol (s. g. 0.817),	
Water.....	of each q. s.

'Mix three measures of the alcohol with one of water, moisten the powder with the menstruum and pack it in a glass funnel prepared for percolation, and gradually pour the menstruum upon it until one pint of the tincture is obtained. Set this aside in a shallow vessel, to evaporate spontaneously to twelve fluid ounces; continue the percolation with the same menstruum until two pints more of the tincture are obtained, or until the powder is exhausted. Evaporate this by means of a water bath, at a temperature not exceeding 140°, to four fluid ounces. Mix this with the reserve tincture, and filter through paper.

A solid extract of guarana may be made by carefully concentrating eight ounces of the fluid extract to the proper consistence, with the addition of six drachms of glycerine.

Guarana yields about one-third of its weight of solid extract.

The dose of the fluid extract is from fifteen minims to half a fluid drachm; and the dose of the solid extract from five to ten grains, three or four times a day.

Another menstruum has been proposed, consisting of alcohol (s. g. 0.817), 8 parts; water, six parts; glycerine, 2 parts. This is said to be more satisfactory than the more alcoholic menstruum of Mr. Moore, which, with some samples of guarana, has been found to favor the formation of a deposit after long standing; but upon this point it must be said, that the varied results obtained both in the preparations of this drug and in its therapeutic applications are no doubt due to wide differences in the quality of different samples of the drug itself. Some samples have been found which are of very inferior quality, and almost destitute of medical value. There can be little doubt that *Paullinia sorbilis* possesses valuable properties; but if these are to be rendered avaliable the seeds of the plant should be obtained (doubtless they could be if there was sufficient demand), and the various pharmaceutical preparations made from them instead of the crude product guarana, which from its nature must be of very uncertain composition.—*The Laboratory.*

MONOBROMATED CAMPHOR.

M. Gault, a pharmacien at Nancy, has summarized in an interesting note the researches made by different chemists on monobromated camphor, and has examined into the conditions which are most favorable to its preparation. This compound being now employed by many physicians, we think it will be interesting to pharmacists to know its principal characters, and how it may be prepared.

Monobromated camphor was discovered by M. Schwartz in 1862, and studied successively by Messrs. Perkin, Maisch, and Gault.

It is known that camphor and bromine combine by simple addition, and that the product $C_{10}H_{16}OBr_2$ is very unstable. Perkin observed that by distilling this body, and purifying the distillate obtained above 264° C., monobromated camphor is obtained:—

$$\underset{\text{Camphor bromide.}}{C_{10}H_{16}OBr_2} = \underset{\text{Monobromated camphor.}}{C_{10}H_{15}OBr} + \underset{\text{Hydrobromic acid.}}{HBr.}$$

Monobromated camphor is therefore camphor in which one atom of hydrogen is replaced by one atom of bromine. It can be prepared by heating at 100° C. for some hours, in sealed tubes, one molecule of camphor and one molecule of bromine, and purifying the product; but this method occasions great loss.

M. Maisch has proposed to prepare monobromated camphor by forming first the camphor dibromide at a low temperature and in pres-

ence of alcohol, then decomposing this at 132° C., and finally transforming the major part of the oily residue into monobromated camphor at 260° C. According to M. Gault, the use of alcohol is not necessary. This chemist, profiting by the observations of Perkin and of Maisch, recommends the following process, which is described in his own words :*—

I introduce a given quantity of camphor into a flask capable of holding ten times the volume of dibromide to be prepared; I then cause to fall on this powder, agitating it the while, a fine stream of bromine, until the camphor is liquefied. Under these conditions about one molecule of bromine is used for one molecule of camphor.

The transformation of the camphor dibromide into monobromated camphor is effected in the same flask, to which is now adapted a large and long tube leading into an alkaline solution, for the absorption of injurious vapors. The flask is placed in water, which is raised to the boiling point; the reaction immediately commences, accompanied by the abundant disengagement of hydrobromic acid and some vapors of bromine and undecomposed camphor. The liquid, at first of a rich brown, acquires an amber color, and the disengagement of gas suddenly slackens. The arrangement of the apparatus and the tumultuous disengagement of gas have not permitted a determination of the exact temperature of the reaction, but it is certainly between 80° and 90°, and does not reach 132°. This temperature, indicated by M. Maisch, is too high; I insist on this last point, because I have been able to convince myself, by a comparison of processes, that the quantity of oily product is thus notably diminished, and that the purification of the monobromated camphor becomes much more easy. The amber liquid in the flask solidifies on cooling into a friable mass, of a pale lemon color. If the contents of the flask be emptied into a capsule it will be noticed that the disengagement of hydrobromic acid still continues and does not cease for some hours. But if this same liquid be thrown into boiling distilled water, and the boiling kept up for some time in the open air, the hydrobromic acid and the last traces of bromine are almost entirely removed, and what remains is nearly white. I should remark that the volatilization of monobromated camphor by means of water vapor, a fact announced by M. Maisch, is not so notable as to neutralize the advantages of this first step in purification. To obtain a colorless and crystalline product, either the method of decolorization by animal charcoal, or that of successive crystallizations may be adopted. In either case the crude lemon-colored mass is treated by boiling alcohol (90°–95°), and the filtered liquid left to

* *Journ. de Pharm. et de Chemie*, December, 1874, p. 438.

crystallize. The crystals obtained are dried in the open air on unsized paper. The plan of successive crystallizations presents a certain advantage over that of decolorization; indeed, the mother liquors are colored by concentration and require a new edition of charcoal each time.

Monobromated camphor forms tufts of colorless acicular crystals with a rectangular base, sometimes three centimetres long. These crystals are hard, and crack between the teeth; their odor is at the same time camphoraceous and terebinthinate, less penetrating than that of camphor, but also less fleeting. The taste, slightly bitter, recalls that of camphor and Venice turpentine.

Monobromated camphor is insoluble in water, soluble in alcohol, fixed and volatile oils, ether, sulphide of carbon, chloroform, etc. It melts at 67° according to Maisch, and at 70°–76° according to other observers. Heated to 100° it gives no sublimate of camphor; ignited with potash it leaves a residue of carbonate and bromide.

In the mother liquors, and in the crystals of the second and third crystallizations, is an oily substance, the hydrobromate of monobromated camphor, the utilization of which constitutes the fourth phase in the above process. This body may be almost entirely removed by submitting the crystals to pressure between folds of filtering paper, but this operation causes considerable loss. I have also tried the use of alkalies, in the hope of fixing the hydrobromic acid, but the result was not successful. It is preferable to follow the indications furnished by M. Schwartz, according to which the dissociation is effected at 260°, as represented by the equation—

$$C_{10}H_{15}OBr\ HBr = C_{10}H_{15}OBr + HBr.$$

I ought to observe, however, that in order to avoid carbonization of a large proportion of the product, it is preferable to work below 260°, for between 200° and 220° the disengagement of hydrobromic acid is abundant and almost complete. The product is a black viscous mass, which, on cooling, becomes solid and brittle. With boiling alcohol, the mass furnishes, after filtration, new colorless crystals of monobromated camphor. If the anti-spasmodic and sedative properties of this body are confirmed, physicians may easily obtain it in a state of great purity, for by the above process pharmaceutists will be able to prepare it in their own laboratories.—*Chemists and Druggist's Circular.*

In an article which appeared in the *Practitioner*, entitled "Camphor and its Monobromide," Dr. Robert Lawson, of the West Riding Asylum,

remarks upon the want of convenient forms of administering this compound. He says:

"To begin with, it must be observed that the very limited solubility which characterizes camphor is present to even a more marked extent in its monobromide. Not only so, but the high diffusive power which in camphor appears to compensate in some measure for its meagre solubility, seems to be much less characteristic of the monobromide. In sufficient quantities for the production of any marked result, camphor cannot be dissolved so as to remain in solution and be at the same time sufficiently bland for administration in anything but milk, and milk is a most inconvenient dispensing medium. In pills it is so bulky that scarcely more than two grains can be given in each, so that eight or ten pills require to be administered in a dose before much physiological effect can be looked for. Though an enthusiastic experimentalist might find no difficulty in overcoming the nausea which physic, quite as much in the abstract as in the concrete, generally creates, and in swallowing ten large pills in succession, the performance would not recommend itself to a patient with a diminished appetite and a fastidious palate. Again in mucilage, or in oils and fats, the drug would become most uninviting, and would most probably be rejected either before or after an attempt at deglutition. The same objections apply equally to the monobromide of camphor. In fact, it appears to me that in the case of the new drug they are intensified. The solubility of the monobromide in spirit is much less than that of the pure camphor; and as the monobromide is at once precipitated in an artificial gastric juice, there is every reason to believe that in any mode of administration it assumes the undissolved form in the stomach. Consequently, it must produce all those bad effects upon the mucous membranes which have been ascribed to camphor. With a candor which shows his desire to reach the truth, Dr. Bourneville admits that it does so when he concludes that 'the monobromide of camphor brings on in guinea-pigs and in cats a loss of flesh which, when the experimentation is carried on, soon occasions, in turn, a fatal termination.'

"Also with regard to hypodermic injection, it must be observed, as an important matter when determining the practical utility of the drug, that the marked insolubility of the monobromide of camphor renders it necessary to use so pungent an injection, and to make so many punctures, that unless some new bland solvent can be discovered for it, its use in medical practice must be deferred. Though I have not seen a single sign of suppurative or erysipelatous inflammation from the use of the injection prepared according to Dr. Bourneville's formula (and I have made fifteen consecutive hypodermic injections into one animal), yet it would be impracticable to use a hypodermic injection of a

pungent character, of which several and perhaps numerous consecutive new insertions would be demanded before any beneficial result could be hopefully expected."

Dr. Lawson concludes the article by expressing a doubt whether either camphor or its monobromide will ever be favorite medicines, owing to their limited solubility, unless some means should be devised of introducing them into the stomach in a manner calculated to lessen their tendency to produce gastric irritation. *Dragées*, such as Dr. Bourneville refers to, are elegant preparations, but he thinks, as far as the tendency to irritation is concerned, they have no advantage over pills, and he is afraid that for hypodermic injection a more concentrated and more bland solution will require to be devised before the monobromide can come into general use. Still, the preparation is one which, in his opinion, possesses a value that will reward any reasonable amount of ingenuity expended in determining convenient methods of administering it.—*Pharmaceutical Journal.*

SYRUP OF TOLU.

BY R. ROTHER.

Among many useless officinal preparations syrup of tolu may be mentioned, but as it is widely used and seemingly much appreciated it should be considered no more than meet if the process were constructed upon a more rational and practicable basis than the present one is. Syrup of tolu is largely used, aside from its supposed medicinal virtues, as a flavoring adjuvant. On this account it is frequently brought into mixtures where, upon therapeutical grounds, the presence of alcohol should be rigidly excluded; suffice it to say, for instance, where chloral is prescribed, since it has long become an established fact that the chloral alcoholate invariably resulting under such circumstances is a dangerously deleterious body, not at all resembling chloral-hydrate in medicinal effect. Now, since the proportion of alcohol in officinal syrup of tolu is nearly 7 per cent. by volume, it becomes evident that this is a much too spirituous compound for indiscriminate and general use. Certain medicines, it is well known, cannot be advantageously exhibited for administration without the assistance of an alcoholic solvent, under such conditions; and where the application of alcoholic medicines is positively contra-indicated, resort must often be had to less active and reliable agents. But when medicines otherwise as easily prepared and in themselves absolutely stable without the preservative aid of alcohol, as syrup of tolu for example, are unnecessarily

doctored with alcohol, then one must stand amazed at the singular views and actions of our codex men. The positive permanence of aqueous (?) tolu preparations is seemingly so great that quite recently "tolu water" was highly recommended for the preparation of an unchangeable mucilage of acacia. If this was a fact it would be received with unquestioned marks of welcome, but the presence of 13 per cent. of alcohol in the "water" has evidently something to do with its antiseptic properties. According to this, it would be equally justifiable to prepare mucilage with water containing a sufficiency of alcohol. This plan would perhaps be a good one, and there is no doubt but that a mucilage equally as dense as the officinal could be made by means of a solvent containing 12 to 13 per cent. of alcohol, and it would unquestionably remain permanent. The objection to alcohol on general principles would here apply with the same force as that against glycerine: either, when used in the proper proportion, will preserve the mucilage, but there are cases when the presence of any one would not be strictly justifiable. The writer has, however, found that mucilage, prescribed on almost any occasion, can always be best prepared extemporaneously, and will hence be invariably fresh. In such cases it rarely occurs that sugar or syrup is not simultaneously prescribed, and in the absence of this, an alcoholic fluid is frequently combined. Therefore, in either case, the application of pulverized acacia is opportunely admissible. No difficulty whatever is experienced in readily dissolving the powdered gum, if this is first mixed with the syrup or alcoholic liquid previous to the addition of water.

The application of tincture of tolu in preparing the syrup is uselessly expensive and circumstantial, and the presence of so large a proportion of alcohol never fails to cause a considerable quantity of sugar to speedily crystallize out. The greenish-yellow tint of the aqueous filtrate is supposed to indicate the effectiveness with which magnesium carbonate favors the solution of the soluble parts; however, this color is entirely due to the action of sodium carbonate which mechanically adheres to the magnesium carbonate employed. It is also the presence of this alkali which causes the appearance of the peculiar tints brought out in the preparation of certain other similarly prepared solutions. It is therefore evident that the alkali favors the solution of certain constituents of the balsam that would not enter the solution but for the presence of the alkali; hence a syrup of tolu, in order to approach the officinal, must of necessity contain some alkaline base in combination with the peculiar acid (cinnamic) or acids of the balsam. The writer has, however, devised a most expeditious and effective method of preparing this syrup, whereby alcohol and magnesium carbonate are excluded, filtration avoided, and a highly fragrant

yellowish-green and perfectly clear and transparent syrup is obtained. When balsam of tolu is heated for a short time with water containing a small quantity of ammonia, a solution results which, on the addition of an acid, gives a voluminous white precipitate of cinnamic acid; probably this indicates that ammonia can be used to advantage. The writer's observation on the action of dense solutions of sugar is here brought to bear, and the resulting formula is as follows:

Take of Balsam of tolu	2 dr.
Water of ammonia	20 ♏.
Granulated sugar	26 ozs.
Water	1 pt.

Place the balsam in a porcelain capsule of convenient size and pour on the water previously mixed with the ammonia, apply heat for a few moments, and add half the sugar; now continue the heat, without boiling, for half an hour, stirring the mixture frequently, and preserving the measure by the addition of more water, if necessary; then add the remaining sugar, and, after fifteen minutes, remove the heat, and strain the syrup while hot.—*Pharmacal Gazette.*

PREPARATION AND PROPERTIES OF GLYCERINE.

BY E. SCHERING.

Crude glycerine is obtained as a by-product in the manufacture of stearin. Formerly the dilute glycerine solution was allowed to run away, but no manufacturer does so any longer, for the article is too valuable and too much in demand. Different methods are employed to decompose the fats employed:

1st. Complete saponification by means of caustic lime; the glycerine separates with the excess of lime, and is evaporated.

2d. The fats are mixed with a few per cent. of sulphuric acid, and subjected to a high temperature. The glycerine that separates contains much sulpho-glyceric acid.

3d. The fats are decomposed by superheated steam alone, and the stearic acid as well as the glycerine distilled off.

The once-distilled glycerine is the best for cleaning and for distillation. It contains but little butyric and fatty acids, and has the sweet smell of glycerine. It is unnecessary to first remove the foreign organic acids, the caustic lime, or the sulphuric acid. To make purified glycerine (*glycerin. depurat. album*) from the crude, if the

latter contains lime, carbonic acid is passed through it first, and then superheated steam, in order to drive out the butyric acid; finally it is passed through animal charcoal to decolorize it, which often requires from two to three weeks, according to the quality. It is then evaporated down *in vacuo*. If the glycerine contains sulphuric acid, it must be diluted and treated while hot with carbonate of barium.

Glycerin. depurat., so called, always contains more or less chlorine, sulphuric acid, fatty acids, lime, etc., and most of it has a foreign odor, so that it cannot be employed for medicinal purposes. It is principally employed for mixing with soap, filling gas meters, and for different technical uses.

Glycerin. pur. distillat.—Crude glycerine is distilled in a retort or still with superheated steam, the greatest care being required, for if the steam is not hot enough it distills too slowly, while if the steam is too hot it comes over colored, and has an odor of acrolein. It is difficult to prevent very small quantities of chlorine and of lime being carried over. Suffice to say that this preparation offers innumerable difficulties, and it is seldom obtained so pure as to answer the strictest demands of pharmacy. It is either not entirely colorless and odorless, or it contains traces of chlorine or lime. Hence the test of the pharmacopœia may lead to false conclusions.

1. "It should not blacken when treated with dilute sulphuric acid and evaporated." How long should the evaporation be continued? If evaporated until the water in the dilute acid is all driven out, the glycerine is subjected to the action of concentrated acid, and, being an organic body, is of course charred and blackened. Is this a test for sugar, or what is its use?

2. "Glycerine does reduce a solution of ammonio-nitrate of silver." Every specimen of distilled glycerine—and pure glycerine can only be prepared from the distilled—reduces silver. A beautiful mirror is formed at once on boiling, in a short time, if cold. The author was unable to remove the reducing body formed by overheating. The glycerine was boiled with an excess of oxide of mercury, which was reduced, but the filtered glycerine showed the same reaction toward silver.

3. The pharmacopœia test with caustic potash and sulphate of copper, with which the glycerine should not turn red, is, the author thinks, a suitable and proper one. Fehling's solution, which is the most delicate test for sugar, cannot be employed here, since it gives a yellowish brown precipitate with glycerine. The tartaric acid of Fehling's solution seems to play some part in the reaction.

The difference in specific gravity from 1.23 to 1.25 is very great, and corresponds to a difference of 7 per cent. If the glycerine is very

concentrated it irritates the skin, producing a smart, because in this concentrated state it has a great affinity for water. Hence it is better to employ the dilute of 1.23 specific gravity. Chemical tests made with specimens of glycerine from different and best-known sources have shown only very slight qualitative variations, a proof that none of the methods of purification at present in use are able to produce another sort of glycerine.—*Journal of Applied Chem.*

Solubility of Salicylic Acid in Glycerine.—One part of salycylic acid dissolves completely in fifty parts of cautiously heated glycerine, the solution remaining clear after cooling, and may be diluted without separating the acid. A solution made with one part of salicylic acid, 20 to 30 parts of glycerine, and 300 to 500 parts of hot water, has been used for some time in the surgical ward of the Bremen hospital.—*Phar. Zeitung* and *Am. Jour. of Pharm.*

AN IMPROVED METHOD OF USING LITMUS PAPER.

BY CHARLES J. LAWLER.

The use of litmus paper in the hands of those who have but little practical acquaintance with it, and but few occasions to use it, is often unsatisfactory. When a solution is strongly acid or alkaline the change of color which it causes in the litmus paper is very distinct, and no doubt is left in the mind of the experimenter as to the nature of the solution under examination. But when the solution has a very faint reaction, as it necessarily must have as it approaches neutrality, the inexperienced eye generally fails to detect the almost imperceptible change in color which has taken place in the paper.

The reaction of litmus paper determines the acidity or alkalinity of a liquid to a limited degree, near enough, however, for most practical purposes, but it was well to attain, as near as possible, the limits of this test. To gain this end, well-made litmus paper is indispensable. The litmus paper obtained from the wholesale druggist is often unreliable. No solution short of positive acidity or alkalinity will affect many specimens obtained from this source. Well-made test paper, if improperly preserved, is unreliable. Probably no better directions for the preparation and preservation of litmus paper can be found for the pharmacist than those given by Dr. E. R. Squibb, in his excellent article on this test.

Some pharmaceutical writers overlook the fact that some neutral

salts strongly affect litmus paper. We have a familiar instance of this in the articles which occasionally appear in some of our journals on Liq. Ammonii Acetatis. In the preparation of this solution, we are told to take a portion of the solution after effervescence has ceased, and heat it to drive off the carbon dioxide, and then test with litmus. Here the writer, though aware of the acid reaction of carbon dioxide, seems uninformed of the fact that the neutral acetate has a strong alkaline reaction, so strong indeed as to overwhelm the acid reaction of CO_2 when present even in large volume. Yet these writers insist that the finished article shall be neutral to test paper; in order to have it so an excess of acid not allowable would have to be added. In order to gain the full benefit of the reaction of litmus paper, the eye must be aided by artificial means; this organ is unable to detect the exceedingly slight changes which occur in the paper when the solution is near the point of neutrality. In order to profit by these changes advantage is taken of the following facts:—

1. When litmus paper is wet with distilled water, the blue appears more blue, and red acquires a more distinct pink than when dry.

2. Any change occurring in the wet test paper, though imperceptible when viewed by itself, is easily recognized when compared with a piece of the same wet colored paper to which the test has not been applied.

3. The contrast in color is still plainer if both the tested and untested papers are compared on a bright yellow groundwork.

4. The change is more readily perceptible if the solution is quite warm.

The following is an expeditious method of using litmus paper in accordance with the preceding facts: Take a bright lemon-colored porcelain plate (when this is not attainable, a white porcelain plate or pill tile is the best substitute), and on one side of the upper surface, and as evenly as is convenient, distribute small squares of blue litmus paper, wet, about three-eighths of an inch apart; distribute the red in like manner on the other side of the upper surface. Now, with a pointed glass rod, apply a drop of the solution to be tested to one of the squares. If any reaction occurs, though slight, it is at once perceived by contrasting it with the adjacent squares, the bright groundwork still further enhancing the contrast.

Small squares of test paper are used instead of strips, because more economical. The paper being used wet, its capillarity is increased. A drop of the test solution applied to one end of a wet strip rapidly diffuses itself through the whole strip and the force of contrast is lost.—*Journal of Applied Chemistry.*

SOME OF THE USES OF PARAFFIN.

In addition to the properties which have brought it into such extensive use for illuminating purposes, paraffin has qualities which give it an exceedingly wide range of useful applications. White, clean, incorruptible, odorless, tasteless, plastic, water-repellent, a non-conductor of electricity, and but slightly affected by most chemical agents, it needs only to be better known to become the most variously useful of the hydrocarbons.

For waterproofing fabrics for wearing apparel, military equipment, and the like, it is much better than rubber, since it is odorless and does not become sticky with heat. Among the most gratefully acknowledged of the many gifts sent out to Livingstone in the wilds of Africa, were boots and blankets thus prepared, the one enabling him to travel through mud, the other to sleep in it with comparative comfort. For the waterproofing of tent cloths, ground sheets for soldiers, and other articles of the sort, it has been found equally serviceable.

A more generally useful application of paraffin is for the lining of casks and other wooden vessels, to keep them sweet and to prevent either the absorption of their contents by the wood or their escape through the pores. Already it has been largely applied to beer barrels, wine casks, and other vessels of the kind, with the happiest results. It keeps them from becoming musty and foul; and still more, by filling the pores and joints of the staves, it prevents the escape of the life of the liquor, carbonic acid gas. Water buckets, butter firkins, and other wooden articles of domestic use might be similarly treated; and as the material is cheap, easily obtained, and easily applied, it can be tried on as large or small a scale as one may feel disposed.

Being indifferent to most chemicals, paraffin serves the same purpose equally well in the laboratory of the chemist and chemical manufacturer. In the manufacture of gun cotton, for example, wooden tanks lined with paraffin have been used for holding the mixture of concentrated sulphuric and nitric acids employed in that process, the protection of the wood being complete and lasting. Wooden boxes, protected in the same way, have been similarly employed in the construction of voltaic batteries. As a non-conductor of electricity, paraffin is further useful, as an insulator, for which it is now extensively employed in electric telegraphy; also in connection with batteries for medical use, especially as an acid-proof coating to insulated conducting wires. In surgery, it has been found an excellent material for covering for splints in cases of fracture.

Those troubled with loosely fitting plates of artificial teeth, owing to absorption of the gums, can easily remedy the defect by dropping upon the plate a little melted paraffin, from a lighted candle or otherwise, replacing the plate while the paraffin is yet warm. Being clean, tasteless, plastic at a low temperature, and unaffected by saliva, this substance will be found much superior to wax or any other material for the use, a few drops rightly placed making a perfect fit with a plate otherwise unwearable.

In the laundry, paraffin rubbed on the hot flat iron imparts a beautiful gloss to starched goods, greatly lightens the labor of ironing, and leaves no greasy stain. For this use it is much superior to spermaceti. Friction matches are now prepared with paraffin in place of the sulphur formerly employed; it burns without odor and goes out instantly, greatly reducing the dangers of accidental fires. Dissolved in naphtha, paraffin has been applied with excellent effect to decaying brick and stone work, filling the pores of the brick or stone and putting a stop to the destructive action of the weather. Fine woodwork exposed to the elements might be protected in the same way. Heated with sulphur to a moderately high temperature, paraffin is decomposed, with the evolution of abundance of sulphuretted hydrogen. A steady and copious flow of this indispensable reagent in the laboratory is thus easily and cheaply obtained.—*Scientific American.*

Origin of Peruvian Nitre.—The nitre districts of Peru form a plateau of a mean elevation of 3,000 feet, 15 to 20 leagues broad, and several hundred in length. Antony Guyard, in the *Moniteur Scientifique*, proposes the following theory to account for its formation: He supposes that there has been an epoch when nitrogen compounds were disengaged from the volcanoes, just as there were sulphuric, hydrochloric and boracic acid epochs. The alkali is derived from the decomposing porphyritic mountains, which have also given rise to the beds of kaolin and other clays. In general, the saltpetre exists in the form of saccharoid deposits, composed principally of nitrate of soda and chloride of sodium, mixed with nitrate and iodate of potash, chlorides of magnesium, aluminum and calcium and sulphates of lime, magnesia and alumina. The earthquakes of these regions he considers to be subterranean electric storms. The author opposes the view that the nitre beds are derived from decomposed guano, and the iodates from seaweeds. He has also shown that the coloring matter of the nitre beds are not of organic origin, the yellow being chromic acid and the violet manganic.—*Journal of Applied Chemistry.*

Jaborandi.—The following description of this new drug is condensed from the *Pharmacal Gazette*:—"It is a shrub about five feet high.

The root is cylindrical, hardly tapering at all, nearly three-quarters of an inch in diameter for the first twelve inches, and very sparingly branched. The bark of the root is of a pale yellowish brown color, and has a very short fracture. The outermost layers are very thin and papery, and are frequently exfoliated.

"The stem is half an inch in diameter near the root, narrowing to a quarter of an inch in the upper branches. The bark is thin, of a grayish-brown color, and readily scales off when the stem is broken or bent. The wood of the stem is yellowish-white, and is remarkably fibrous. The stem is alternately branched at a very acute angle (of about 20°), the branches being erect and furnished with alternate leaves. The leaves are imparipinnate, and about nine inches long, with but three to five pairs of opposite leaflets, which are articulated to the rachis and have very short, slightly swollen petiolules. The rachis of the leaf is swollen at the base.

"The leaflets are very variable in size, even on the same leaf. Their general outline is oblong-lanceolate. They are entire, with an emarginate or even retuse apex, and an unequal base. The veins are prominent on both sides of the leaf, and branch from the midrib at an obtuse angle (about 60°) in a pinnate manner, remaining distinct until within one-quarter of an inch of the margin of the leaf, where they become lost in the network of veinlets. The midrib is scarcely prominent on the upper, but forms a distinct keel on the under surface of the leaflet. When held up to the light the leaflets are seen to be densely pellucidly punctate. These pellucid dots, which are receptacles of secretion, are not arranged, as in another kind of jaborandi, in lines along the veinlets, but are irregularly scattered all over the leaf, and appear equally numerous in every part; they are mostly rather large, but vary a little in size. The whole plant is glabrous."

Pilocarpine—the Active Principle of Jaborandi.—Mr. A. W. Gerrard has communicated to the *Pharmaceutical Journal* that he has separated an alkaloid from jaborandi which is the active principle of the drug, and which he calls pilocarpine. Half a grain produced the full effects of jaborandi. The following is the mode of preparation:—

Prepare a soft extract either of leaf or bark with 50 per cent alcohol. Digest this with water, filter and wash. Evaporate the filtrate to a soft extract, cautiously add ammonia in slight excess, shake well with chloroform, separate the chloroform solution and allow it to evaporate; the residue is the alkaloid pilocarpine with probably a small amount of impurity.

Besides the alkaloid, jaborandi contains an acid resin, tannic acid,

volatile oil, and chlorophyll. The acrid resin is soluble in ether, and possesses properties which indicate it to be the substance by which the effects of its external application are produced.

Wine of Tar.—J. B. Morr speaks of the tiresome and complicated process of making the wine of tar recommended by the Dispensatory; of the unreliable strength and unsightly appearance of the product, and of the copious mucilaginous deposit which occurs when the medicine is allowed to stand, and which appears to carry with it almost all the virtues of the tar. He suggests, instead, a mode of preparing the wine which obviates these objections, and affords a more efficient and satisfactory product in all respects. The formula is as follows:

℞, Tar, pure.....	℥ xvj. (troy.)
Glycerine,	
Sherry wine,	
Honey.....	āā f. ℥ viii.
Acetic acid.....	f. ℥ i.
Boiling water.....	Ovj.

Mix the glycerine, sherry wine, honey, acetic acid, and boiling water together in a stone jug, or other suitable vessel, of the capacity of a gallon. To the mixture add the tar, and shake the whole vigorously for several minutes. The vessel is then to be tightly stopped and placed upon a stove, or in a water-bath, resting upon folds of paper, and the mixture digested, for an hour or two, at a temperature of from 150° to 160° Fah. During the digestion the mixture should be frequently well shaken. When the digestion is completed, the mixture is to be set aside to macerate, in a warm place, for a few days, it being well shaken occasionally during the process. Lastly, strain through muslin, and filter the strained liquid through paper.

Chloridine.—This compound has become so popular with the medical profession that a uniform preparation, with a consistent and facile formula, has become simply imperative. The compound, as generally prepared, has always an unsightly exterior, and frequently an internal construction at once irrational and dangerous. So powerful a remedy should on no account be, as it now is, a heterogeneous mixture, susceptible of resolving itself, by stratification, into several distinct and persistent layers, immediately after setting it at rest. Great license has thus far been exercised in the construction of all formulas that have been published, and with such a diversity in the various proportions of the most powerful agents known to therapeutics, it is simply marvellous

that serious accidents have not occurred in its use. In order to come to a final arrangement of this difficulty, a few preliminary points will have to be first considered. The mixture must, above all else, be uniform and more definite in strength—that is, the proportion of the most important and characteristic of its components must be made to conform in their respective doses to the dose of all combined as a whole. Then such bodies as oppose the formation of a perfect and unchangeable solution must be incontinently dropped. Among the supernumeraries of an especially useless and intractable character are treacle water, perchloric acid, and peppermint. The remaining ingredients worthy of incorporation by virtue of their harmonic excellences are morphia, prussic acid, chloroform, ether, cannabis indica, and capsicum. The adjuvant is most excellently supplied in glycerine, the vehicle and solvent in alcohol, and the necessary color in licorice. Since the dose ranges from 20 to 40, and even 60 minims, frequently repeated in urgent cases, the quantity of each ingredient exhibited per fluid drachm will be: Of acetate of morphia, $\frac{1}{8}$ grain; prussic acid, 2 minims; chloroform, $7\frac{1}{2}$ minims; ether, $7\frac{1}{2}$ minims; extract cannabis indica, $\frac{1}{8}$ grain; capsicum, $\frac{1}{2}$ grain; licorice, 2 grains; glycerine, 15 minims; and alcohol, about 30 minims. Combining these ingredients according to art, we have the following formula for an elegant dark-brown, clear and transparent, perfect and permanent, thin, syrupy solution:

Take of Acetate morphia	8 grs.
Prussic acid (U. S. P.)	2 fl. drs.
Chloroform	1 fl. oz.
Ether	1 fl. oz.
Extract cannabis indica	8 grs.
Pulv. capsicum	$\frac{1}{2}$ dr.
Pulv. licorice	2 drs.
Glycerine	2 fl. oz.
Strong alcohol, sufficient to make	8 fl. oz.

Dissolve the extract of cannabis indica in 4 fluid ounces of strong alcohol, and add the glycerine, then add the capsicum and licorice, and stir the whole well together; pour the mixture on a filter, and to the filtrate add the acetate of morphia, chloroform, ether, and prussic acid, and mix the whole. If the filtrate does not measure $5\frac{3}{4}$ fluid ounces, pass a mixture of 2 parts of alcohol and 1 of glycerine through the filter until that measure is obtained, before adding the last four ingredients.—*Pharmacal Gazette.*

Propylamina and Trimethylamina.—Schering states that the so-called propylamina, as obtained from herring-pickle, contains only

10 per cent. trimethylamina and some ammonia dissolved in water. Instead of distilling herring-pickle, the commercial so-called propylamina is now frequently made by mixing the alkalies in the above proportions. On the application of a moderate heat, the commercial article must give off inflammable vapors, but not after the previous neutralization with hydrochloric acid. If thus neutralized and evaporated to dryness, absolute alcohol will dissolve from the residue only the trimethylamina salt. Pure propylamina has an ammoniacal odor and boils at 50° C. The odor of trimethylamina is similar, but its boiling point is +8° C.—*Ibid.*

The Employment of Coal Oils in the Preparation of Alkaloids.—MM. Boiraux and Leger (*Répert. de Pharm.* in *Pharm. Jour. and Trans.*) found that the so-called coal oils may be advantageously employed for the separation and extraction of vegetable alkaloids. For this purpose the light oil, benzole, boiling between 50° and 100°C., was found generally useful; but the heavier oil, coming over between 80° and 120° C., was sometimes required. The addition to the preceding of 5 per cent. of carbolic acid was occasionally of advantage. These solvents have but little solvent action upon the extract of plants, and yield, at once, nearly colorless solutions of the alkaloids, from which crystals may often be obtained, but it is generally necessary and preferable to pass the alkaloids into an acid liquor, and then precipitate. Certain fatty and resinous bodies are thus removed, and the product rendered perfectly white. For particulars regarding the manner of procedure we must refer our readers to the authority last named, Feb. 13th, 1875, and following number, where the extraction of most of the vegetable alkaloids is treated of in detail.—*Canadian Pharm. Journal.*

Cantharidal Cerate.—Very few pharmacists prepare this important vesicant themselves, but rather depend upon the large producer for its quality and, hence, effect. This is one of the few medicinal agents wherewith it is barely possible to "pull the wool" over the consumer's eyes, in case its quality should not accord with that of a prompt and perfect vesicant. It is, however, also one of the few medicaments wherewith wilful sophistication is rarely attempted, and yet the complaints about its evident inactivity are of frequent occurrence. This anomalous condition is by no means due to an inferiority of the cantharides employed, but totally rests in their method of exhibition. That some lots of cantharides should be effective, and others apparently not, rests in the peculiar envelopment of its active principle. The two kinds of cantharides are, therefore, properly distinguished as active and inactive, or positive and negative, cantharides, and the same ap-

pellation applies to the respective cerates prepared from them. It has been proposed to change the negative state of cantharides by a process in which the cantharidin of the flies, in whatever state of combination it previously existed, was wholly united to a fixed caustic alkli, and then again liberated by an appropriate acid. This operation, however efficient it might be, is yet not applicable in the ordinary course of business, but is evidently well suited for the *preparation* of the flies on the larger scale. The positive state of cantharides is readily ascertained by submitting the cerate to the vesicating test; but, ordinarily, their true character could not be ascertained by simple inspection. The failure to produce blisters, however, does not so unfailingly point to simply negative character, as under such circumstances the flies may not be negative alone, but also entirely worthless. It was long since ascertained that negative cantharides, when subjected to a high heat in contact with the fatty matters, were changed to positive—that is, the native or inactive combinations of the cantharidin were destroyed, and this then liberated and subsequently dissolved by the fats. It has, however, been established that oil of turpentine, at a low temperature, exercises a solvent power upon the inert form; therefore, it is even in all cases highly advantageous to make oil of turpentine one of the chief components of the cerate, but it is absolutely necessary in case of negative cantharides. Oil of turpentine also answers as the only positive guide, by simple inspection, as to the activity of the cerate, since the hot oil dissolves more cantharidin than it will hold on cooling, and, therefore, the cantharidin will crystallize out into minute brillant needles, especially distinct by reflected light at particular angles. This test is unfailing; and it may be laid down as a rule that, in case of its non-appearance in the presence of oil of turpentine, the cantharides are effete. The characteristic glitter of the cantharidin crystals is entirely different from, and unsusceptible of being mistaken for, the peculiar glistening of the elytra. The oil of turpentine should be used in the proportion of one in eight of the cerate, and either mixed with the powdered flies previous to adding them to the excipient or immediately after their addition—*Pharmacal Gazette.*

On Pure Dextrin, prepared from Malt.—Bondonneau describes the properties of dextrin prepared by the action of diastase on starch. A kilogramme of dry starch, diffused in two litres of water, was treated in the cold with an extract of 250 grammes of bruised malt in 500 grammes of water; the whole being heated on the water bath to 75° until the starch had disappeared. The liquid was then carried to boiling to destroy the diastase, filtered through animal charcoal, and concentrated to 32°–33° Baumé. To free the dextrin in this solution from the glucose (dextrose)

present, it was first re-precipitated five or six times with alcohol, then treated with a copper test made with cupric chloride and sodium hydrate; this latter treatment destroying the dextrose. As thus obtained, the dextrin showed no coloration with iodine, gave only feeble indications with the copper test (equivalent to 1.85 per cent. dextrose), reduced gold chloride and ammonio-silver nitrate, gave an abundant precipitate with a solution of barium hydrate and with ammoniacal lead acetate, but none with lead sub-acetate. The dextrose present the author believes to be produced by small quantities of non-coagulable albuminoids present, acting as ferments. By care and rapidity in operating, dextrin may be obtained devoid of reducing power. The rotatory power of the dextrin thus obtained is *aj*—176° to the right; that produced by torrefaction being *aj*—183°.—*Bull. Soc. Ch.*—*The Druggist.*

Preparation of Diastase.—The following method for the preparation of diastase is given by Perret, in the *Journal Pharm. Chimie.* Fresh malt is covered with six times its volume of cold water and allowed to stand twenty-four hours, then slowly heated to 70°. C. (158° Fahr.), which coagulates the greater part of the albumen. The liquid is then cooled as rapidly as possible, by the aid of ventilators, and evaporated rapidly in flat dishes, at a temperature not above 50° C. As soon as the liquid is reduced to as small a volume as possible it is mixed with 6 parts of strong alcohol combined with 1 per cent. of ether. This precipitates the diastase, salts, and uncoagulated albumen, while the fat remains in solution. The precipitate can be used as it is, but it does not keep. It is squeezed out and treated with twice its volume of cold distilled water. The albumen, rendered insoluble by the alcohol, remains undissolved. After macerating for two hours, and washing the residue with a little water, the filtrate, which now contains the diastase in an almost pure state, is concentrated and precipitated with absolute alcohol. It appears as light white flakes, which ball together on shaking. Washed with a little alcohol and dried, it is of a light yellow color and possesses a peculiar odor. When about to be used it should be put in water for an hour or two, so that it will swell up again and dissolve.—*Journal of Applied Chemistry.*

The Manufacture of Bromine in the United States.—Mr. Garrigues, in a paper read before the American Pharmaceutical Association, on "The Statistics of American Bromine Production," states that about 130,000 lbs. were annually manufactured, and still more could be thrown on the market if necessary. The yield of bromine is about one pound from thirteen bushels of salt. It is obtained almost

exclusively in the Ohio and Kanawha valleys, the mines at East Saginaw not being sufficiently impregnated with bromine compounds to render them profitable.—*Ibid.*

Damiana.—Another new drug makes its appearance in Washington, the botanical name of which is as yet unknown, *damiana* being the name by which it is known on the western coast of Mexico, where it is said to grow. It is a small plant with a white, fragrant flower; is collected for medical use in August, at which time the stems are covered with a fragrant gum. The dried leaves are small, of a pale green color, with a large central midrib, the under side of which is of a pale yellow color. The stems, as found with the sample of the drug received, are small, woody, and of a yellow and brownish appearance. The mixed stems and leaves present an appearance similar to that of *Coptis trifolia*, and possesses a marked aromatic odor and taste, peculiar and pungent, with no after taste of bitterness, very similar to the taste of many of the *Labiatæ*. Dr. J. J. Caldwell, of Baltimore, has given this new remedy a number of trials, and in the Virginia *Medical Monthly*, in speaking of its medical properties, says: "I am well satisfied, from quite an extended experience with the tincture and extract of this plant, of its powerful influence over the urino-genital organs of both sexes, as in moderate doses it increases the flow of urine as well as the sexual appetite." Dr. Caldwell then gives the reports of several cases where its powerful aphrodisiac effects were obtained after the usual remedies, such as strychnia, phosphorus, and electricity, had failed.

The Cloves of Zanzibar.—The *Pall Mall Gazette* says: "A special kind of cloves—namely, those from Zanzibar—are an important commodity in the London market. But more than two years ago, a hurricane, it will be remembered, devastated Zanzibar, and one of the consequences of this disaster was to destroy nearly every clove tree in that island, and consequently to raise the price of cloves in England. The cloves—which are the fruit, or rather the cup or envelope, of the unopened flowers—grow on trees from fifteen to forty feet high, and it is not considered likely that there will be another crop of this useful spice for the next four years. This is really a serious matter for Zanzibar, as the recently introduced clove cultivation was found to be so lucrative that it supplanted almost wholly the former widespread cultivation of sugar-cane and rice. The first clove tree was introduced into Zanzibar in 1830, mainly through the instrumentality of the French Governor Poirie, of the island of Bourbon, near Mauritius. Annually from Zanzibar upwards of 6,500,000 pounds of cloves have on the average been exported. The value of this product has been estimated as between a

half and one million pounds sterling yearly. This value has, however, seemingly been somewhat depreciated of late. Now that the recent hurricane has wrought such havoc in Zanzibar, cloves, as we have said, have suddenly gone up in the market, and reached an exorbitant price, and holders of large stocks of the article in London are extremely anxious to know when the Zanzibar clove trees will begin to bear profusely again."—*Chemist and Druggist.*

Adulterated Pepper.—Mr. H. Pocklington, in the London *Phar. Jour.*, gives the result of some investigations as to the purity of powdered black pepper. Quite a number of specimens were examined and found to be largely adulterated with such articles as starch, farina, pea-meal, rice-starch, and oatmeal. A lot supplied by a "respectable" spice-grinder to a pharmacist, under a special warranty that it was genuine, was found to contain sixty per cent. of adulterations. The admixtures are easily detected with the microscope, and the examination is facilitated by slightly moistening the pepper.

Aconitine by different Processes.—As is well known, the method of obtaining aconitine differs with the authority to which reference is made. Aconitine by Hottot, of Paris, is far more active than that of German and English manufacturers, and it has hitherto been sought to explain the reason of this peculiarity partly by the habitat and country of *A. Napellus*, and partly by the process adopted for the preparation of the alkaloid. There is little doubt that the true reason lies in the water retained by the aconitine. Aconitine is an amorphous substance, which, when dried on the water-bath, retains no water, but can eaily enclose over 20 per cent. without being damp. In a body so active as aconitine the difference caused by water so held must of necessity be very great. According to this only an aconitine dried on the *water-bath* should be officinal, seeing that the water retained will always vary with the degree of dry heat employed. The maximum dose of dry aconitine might then be reduced to ·003.—*Pharmaceutische Zeitung*, and *Chemists and Druggist's Circular.*

Kola Nut.—This product of the western coast of Africa has become well known to British botanists on account of its use among the natives as a stimulant and promoter of digestion. The *Athenæum* announces that its correspondent at Lagos has sent home to London the fruit and leaves of another kola, known as the "bitter kola," which belongs to a different botanical order—the *Guttiferæ*—and possesses some remarkable properties. The natives use the fruit as a remedy for coughs, and to improve the voice of singers; while the correspon-

dent recommends it as extremely beneficial after sea-sickness, saying: "My appetite returned almost immediately after nibbing a portion of a seed I found in my valise." If he means, as we infer, that the bitter kola nut is a remedy for sea-sickness, and not merely a restorative of appetite after that affliction has terminated of itself, it is not unlikely to prove valuable in medicine.

Occasional Incompatibility of Diluted Phosphoric Acid and Tincture of Chloride of Iron.—In answer to a query proposed by the American Pharmaceutical Association, Mr. L. Dohme (*Proc. Am. Pharm. Assoc.*) detailed the results of a number of experiments made in order to determine the reason why some samples of diluted phosphoric acid form precipitates with tincture of chloride of iron, while others do not. He comes to the conclusion that this effect is due to the presence of pyrophosphoric acid. With acid prepared from glacial phosphoric acid and nitric acid, as in the second U.S. formula, the precipitate was generally produced, and is attributed to the incomplete conversion of the meta and pyro acids into the tribasic form. On this subject, however, the author promises further investigation. Acid prepared directly from phosphorus was found miscible in all proportions, with tincture of chloride of iron, provided the precaution was taken not to carry the concentration too far, or rather not to employ a greater heat than 450° F. in that operation.—*Canadian Pharm. Jour.*

Phosphoric Acid in Ergot.—Professor Levi, of the University of Pisa, has just made known, as the result of numerous analytical and experimental researches, that the physiological, therapeutical, and obstetric properties of ergot of rye are due to the presence of phosphoric acid, which it contains in abundance, much more than to its organic principles (like ergotin, ecbalin, etc.), to which until now had been exclusively ascribed all the various actions of the substance.—*Phil. Med. & Surg. Reporter.*

Solubility of the Active Principles of Rhubarb in Water and Alcohol.—In order to determine whether water will exhaust rhubarb of its active medicinal constituents, Mr. Heinitsh (*Proc. Am. Pharm. Assoc.*) instituted a number of experiments and found that rhubarb thoroughly exhausted with water, dried, and then exhausted with alcohol, yielded to the latter menstruum an extract, which, when administered in pilular form, produced in three-grain doses, laxative effects, and in six-grain doses proved an active purgative. This proves conclusively, that water is not a suitable menstruum for rhubarb, or

at all events, that a thorough exhaustion of its active medicinal principles cannot be effected with this liquid.—*Ibid.*

Orezza Water.—A very agreeable chalybeate water derived from Corsica, is known by the above name. It is well known and highly esteemed in Italy and France, where it is regarded as a sort of natural ferruginous seltzer water.

On the Chemical Nature of Digitaline.—The nature of digitaline has recently been elucidated by the researches of M. C. Kosmann. Purple digitalis contains a proximate principle known under the names *digitaline*, *digitasoline*, *digitalétine*, soluble in water, very hygroscopic, and readily altered by the action of water, of acids, and of alkalies. Diluted sulphuric or hydrochloric acids bring about its decomposition into glucose and *insoluble* digitaline; if the action be continued this latter body breaks up into glucose and *digitalirétine* (also called *paradigitalétine*); by further prolonged action of the acids, digitalirétine yields the dehydrated body of the same name and four molecules of water. The ease with which digitaline breaks up accounts for the fact that both the soluble and insoluble kinds are always obtained from the plant. As will be seen from what has been stated above, both these bodies are glucosides. The first is a combination of digitalirétine with two molecules, and the second of the same body with one molecule of sugar. German digitaline consists chiefly of the soluble kind, whilst the insoluble modification forms the greater part of that made in France, the difference depending on the mode of preparation. The German process gives 0.790 per cent. of digitaline from the dried plant; of this 0.693 per cent. is soluble in water. The formula of soluble digitaline is $C_{54}H_{84}O_{27},3H_2O$; that of insoluble digitaline (digitalétine) is derived by removal of glucose—

$$C_{54}H_{84}O_{27}3H_2O - C_{12}H_{24}O_{12} = C_{42}H_{66}O_{18}.$$

The formulæ of digitalirétine and dehydrated digitalirétine may be similarly derived;—

$$C_{42}H_{66}O_{16}4H_2O - C_{12}H_{24}O_{12} = \underset{\text{Digitalirétine.}}{C_{30}H_{50}O_{16}}.$$

$$C_{30}H_{50}O_{16} - 4H_2O = \underset{\text{Dehydrated digitalirétine.}}{C_{30}H_{42}O_6}.$$

This last-named body approaches the true resins in the large proportion of carbon which it contains; it fuses at 60° C., has an acrid taste, is insoluble in water, soluble in alcohol, ether, and in ammonia. Digitalirétine fuses at 165° C., is insoluble in water, ammonia and

caustic soda, slightly soluble in ether, soluble in hot alcohol, and has a slightly bitter taste: it occurs in sparkling crystalline grains or in nacreous spangles.

If soluble digitaline be compared with salicine, many points of correspondence will be observed. A molecule of soluble salicine yields the much less soluble *saligénine* by loss of two molecules of glucose, and this, by loss of two molecules of water, becomes the insoluble body *salirétine*. Further, salicine combines with bases, and the author has obtained a compound of digitaline with soda—a digitalinate of sodium perfectly crystalline in radial masses.—*Journ. de Pharm. et de Chemie.—Chemists and Druggists' Circular.*

Persian Opium.—The *Chemist & Druggist* of London, speaking of the improved position taken by Persian opium in the English market, says:—It seems likely to become an important competitor with "Turkey seconds." The supply received during 1874, especially the North Persian growths, is said to be far in advance of what has come to hand previously. From some parcels a yield of morphia equal to fine Turkey has been obtained. A point in favor of the Persian is the fact that all the pieces in a parcel are invariably alike in quality. In "Turkey seconds" no two pieces are equal, and therefore it is next to impossible to get a correct assay of the drug from sample. Egyptian opium seems to have almost retired from the competition altogether, and it seems likely that the substitution of Persian for it will prove a considerable advantage to English buyers. In the May issue of their Price Current Messrs. Southall Bros. & Barclay, speaking of Persian opium, say:—Its very acrid taste ought to prevent its being used as a substitute for Turkish. It would also appear to have peculiar intoxicating properties, from observations made by one of our customers, who supplied it to a number of persons and received not a few complaints that "it made them drunk."

Crytopin.—This is the name of one of the numerous alkaloids of opium. Its properties have lately been studied by Dr. Munk of Berlin. It stands close to morphia in narcotic properties, but is much more poisonous, producing loss of motion and sensibility, rapidly followed by cessation of the heart's action. Its chemical formula is given as $C^{21}H^{23}N^{5}$.

Attempts to Acclimatize Cinchona Trees in Reunion Island.—Dr. Vinson says the first seeds sent by MM. Decaisne et Morin were sown near the coast, and then transplanted to heights of

from 700 to 800 metres. Their present condition is extremely promising. One slip, from amongst the first plants, has in four years become a tree of six metres in height. The cinchonas thus obtained have flowered, seeded, and produced bark. Dr. Vinson has projected a large plantation, which comprises at the present time more than 300 trees, of which number the half are not less than nine metres high. The samples of bark from young trees, not yet fully grown, have yielded 14·3 of quinine, and 0·5 of cinchonine per 1,000 parts.—*Chemists & Druggists' Cir.* for the *Journ. de Pharm. et de Chemie.*

On Sumbul Root.—This root appeared first in 1835 at the fair of Nijni-Novgorod. In 1869, the naturalist Fedchenko met with the plant which furnished it on the mountains of Sarafschan, in the Khanate of Bokhara; it had no flowers, which led him at first to mistake it for a fern. The specimens sent to Moscow flourished there, and Professor Kauffmann described the plant as *Euryangium Sumbul.* A microscopical examination of the root was made by M. Tchistiakoff, and these two researches were the subject of a dissertation by M. Petournikoff in "Botan. Zeitung von Mohl und Schlechtendahl." M. Petournikoff observed that the genus *Euryangium* cannot be separated from the genus *Ferula*, the differences being too minute, and he proposes to call this plant *Ferula Sumbul.* It is cultivated at the present time in many botanical gardens in Russia, but the soil, or rather the humid climate, is not favorable for its extensive growth. Sumbul root is esteemed in the East on account of its agreeable odor. —*Ibid.*

A new use for the Marsh-Mallow.—According to a statement in *The Garden*, gypsum mixed with four per cent. of powdered marsh-mallow root, will harden in about one hour, and can then be sawn or turned, and made into dominoes, dice, etc. With eight per cent. of marsh-mallow, the hardness of the mass is increased, and allows of its being rolled out into thin plates, and painted or polished.—*Pharm. Journal.*

Vapor of Mercury.—M. Merget has discovered that by dissolving iridium, palladium, platinum, gold, or silver, in *aqua regia*, a reagent is obtained which is extremely sensitive to mercury, and which will, he believes, prove of great value in the solution of very many practical and theoretic problems. A paper impregnated with such a solution is marked with an indelible black stain immediately it is brought in contact with mercury or mercurial vapor, no matter how small the quan-

tity or how low the temperature may be. M. Merget also hopes to be able to throw great light upon the problem of a limited or an unlimited atmosphere, which was investigated without success by Wollaston and Faraday. He expects to be able to prove that mercury constantly sends forth a vapor, which ascends to the height of a mile at the rate of five hundred and fifty feet per second. As a practical result of his research, M. Merget, by means of these test-papers, exhibits the presence of mercurial vapor in all the workshops and warehouses where this metal is used or stored. If a workman passes but one hour in such an atmosphere, his clothing, face, hair, and beard become impregnated with mercury. If he but touches one of the prepared papers he testifies to the presence of the mercury by a well-defined black mark.—*Pharmacal Gazette.*

Green Iodide of Mercury.—This is prepared by M. Lefort by adding to an aqueous solution of 60 grains of sodium pyrophosphate in 300 c.c. of warm water 30 grains of mercurous acetate, and a solution of 30 grains of potassium iodide in 1 litre of water. The product is of a constant yellowish-green color, and is free from mercuric iodide and metallic mercury.—*Chemist and Druggist.*

Iodic Acid and Iodates.—Iodic acid and iodates are prepared by M. E. Reichardt* by adding chlorinated lime to the liquor obtained by saturating a soda or potash solution with iodine. By this means the alkaline iodide is converted into iodate, and the conversion is complete when a few drops of hydrochloric acid fail to liberate iodine. Iodate of calcium crystallizes out from the solution. Iodic acid is obtained from this by the addition of an equivalent of sulphuric acid.—*Ibidem.*

Koussine.—Crystallized koussine is described by Messrs. Flückiger & Buri in *Archiv de Pharm.*, September, 1874, p. 193, as occurring in needles several millimetres long, or in short prisms belonging to the right prismatic system. Concentrated sulphuric acid, saturated with koussine below 15° Centigrade, deposits either rhombs or radially grouped needles at a still lower temperature. The density of these crystals is remarkable; they sink in sulphuric acid 1.842. They are yellow in color, but the fine powder is white. Koussine contains no water, and fuses unchanged at 142° Centigrade; it is not volatile, and above this temperature it exhales the odor of butyric acid. It is not soluble in boiling water, but readily dissolves in ether, benzine, chloro-

* *Journ. de Pharm. et de Chem.*, from *Archiv de Pharm.*, August, 1874, p. 109.

form, bisulphide of carbon, and slightly so in acetic acid, and in alcohol. A chloroform solution of koussine has no action on polarized light. Koussine forms a yellow solution with caustic or carbonated alkalies; this solution becomes red in time, or immediately if heated. Fused with caustic potash, koussine decomposes into butyric, formic, and oxalic acid. Ultimate analysis gave numbers agreeing with the formula $C_{22}H_{36}O_{20}$.—*Ibid.*

Indian Ipecacuanha.—Dr. King, of the Calcutta Botanic Gardens, states that the increased production of the Ipecacuanha plant by root and leaf cuttings has been quite large. There are now in the gardens a stock of 63,000 living plants, against twelve cuttings four years ago, seven of which were subsequently accidentally destroyed.

We will now have competition with Brazil, which has had the monopoly of this medicinal root. Hereafter we shall depend upon India for a part of the supply needed; and will no doubt be able to purchase cheaper.

Artificial Vanillin.—The manufacture of vanillin from the cambium juice of pines is now carried on by Dr. Haarmann. The vanillin is not furnished pure, but as an extract, or rather as an alcoholic tincture, containing as much of the principle as does vanilla itself, viz., 0.2 per cent. The price of this vanillin solution is two-thirds that of vanilla. The smell of pure non-attenuated vanillin is not quite identical with that of vanilla, as may well be supposed, for the latter contains odorous substances besides vanillin; and moreover the different varieties of vanilla are not identical in aroma. It is said that the artificial vanillin in dilute solution and flavored with spices closely resembles the natural variety. We believe that it would be judicious to bring into use a mixture of vanillin and sugar of definite strength, corresponding to the spirituous solution. We are informed that the vanillin solution has for the time proved a hindrance to the sale of vanillin. It will also, we fear, facilitate the falsification of vanilla by exhausting the good article with alcohol, moistening the exhausted fruits with the cheaper vanillin solution, and drying. According to Professor Hofmann, the juice of a medium sized tree yields vanillin worth eighty shillings.—*Chemist and Druggist.*

Houlican Oil.—Is used for the same purpose as cod-liver oil, and is supposed by some to be its superior. It is prepared by the Indians of Vancouver from the ool-a-chan, or houlican, a small transparent fish, like a smelt. The houlican is somewhat larger than a sprat, and

is so full of oil that it is said that those caught in the north will burn like a candle. The oil is obtained by merely immersing the fish in a small quantity of water, and applying heat; when it rises to the surface it is skimmed off. When properly filtered, it is a very pellucid oil, of a delicate pale-yellow color. When cold it is of the consistence of thin cream; white in color, but with little odor, and by no means unpleasant to the taste; in fact, those who use it soon acquired a partiality for it. The Indians make large quantities of it every season, and with them it supplies the place of butter. They cannot live without it, and it forms a great article of trade.—*Pharmacal Gazette.*

Methods of making Suppositories.—Mr. G. W. Kennedy—who is a strong supporter of hand-made suppositories, and who, at the last meeting of the American Pharmaceutical Association, read a paper in advocacy of the method—contributes a second paper in which he deprecates the practice of purchasing ready-made suppositories, and also describes his particular method of manipulation which he has found attended with most success. His directions are as follows:—Take of cacao butter a sufficient quantity, powder in a wedgewood mortar by first striking the butter gently until it is broken up into quite small pieces, a little care being required so as not to strike too hard, otherwise the friction produced would have a tendency to soften the butter, making it a little more difficult to manipulate; then add the medicinal ingredient, and rub all together, forming a plastic mass to be rolled out into a suitable length, and cut up into as many pieces as suppositories have been directed, each piece to be formed by the fingers and a spatula into a conical shape. It is advisable to sprinkle a little lycopodium over the fingers to prevent contact of heat from the fingers, which would soften the mass during the necessary manipulation. If made in winter, when cacao butter is much harder, by the addition of one drop of glycerine to each suppository, a mass can be formed in a much shorter time.

In a subsequent number of the same journal, this hand process of manufacture is opposed by Mr. Mattison, who says that, without moulds, suppositories cannot, by one apothecary in a hundred, be made to compare with those prepared with moulds. Hand-made suppositories lack the smooth, glossy surface, the elegant shape, the perfect distribution of medicament, the firmness and solidity which characterize the moulded article. The process recommended by the writer is as follows: Place the mould, preferably a hinged one, capable of holding twelve or fifteen suppositories, upon ice, and put the quantity of cacao butter in a capsule; melt quickly, thoroughly incorporating the active ingredient. Stir, while cooling, until brought to the con-

sistence of thick honey; pour into the moulds and allow to solidify. No lycopodium or steatite is necessary, as there is no difficulty experienced through sticking. Breakages need not amount to one per cent. If an extract is used, dissolve in a little hot water, and pour upon the mixture the melted butter. Incorporate as before. In dispensing, place white or pink cotton in a box and place the suppository thereon; cover with cotton and label as usual.

Mr. W. McIntyre prefers to form a plastic mass with the butter and medicament, and cutting the mixture into cylindrical pieces, to place them in a hinged mould and shape them by pressure.

Mr. Sloan, of Indianapolis, has contrived a mould resembling an ordinary syringe, except that the nozzle is replaced by a socket of stout brass, in which a conical cavity is turned, and which forms the apex of the suppository. By means of a piston considerable pressure can be given, but the suppository so formed is said to be open to the same objection as that made with a hinged mould—the mottled appearance, want of uniform consistence, and absence of gloss.

Mr. J. Kemble, in the periodical above cited, also contributes a paper on this subject. This writer favors the hand process; but instead of lycopodium, prefers the flour of elm, to prevent adherence to the fingers. This preference is based on therapeutical grounds. It is recommended that the suppository be wrapped in waxed paper, but it is always well to caution the applicant as to its removal.—*Canadian Pharm. Journal.*

Chloralyde is the name of a new proprietary medicine manufactured in England, consisting of a very strong solution of chloral-hydrate, containing, it is said, half its weight of the substance; ten measured minims of the substance containing five grains of chloral. The taste of the chloral is well disguised, and other substances are added to give the compound, to some extent, the character of chlorodyne.

A New Reaction of Berberine.—This reaction, discovered by M. Klunge, is said to be much more delicate than any hitherto described. An aqueous solution of berberine is made strongly acid with sulphuric or hydrochloric acid, and chlorine water added. In a solution containing $\frac{1}{10.000}$ of berberine, a band of a lively red color is formed at the point of contact of the two liquids; on shaking, the color spreads throughout the mass. It persists for some tmie, if too much chlorine water has not been employed. A solution containing $\frac{1}{250.000}$ only, gives a rose-colored tint. The yellow coloring power of berberine is perceptible to $\frac{1}{200.000}$. Brucine also gives a red coloration with chlorine, but it is fugaceous, and the solution of brucine is color-

less. To ascertain the presence of berberine in vegetable tissues, M. Klunge boils a fragment in water acidulated with sulphuric acid, and then adds the chlorine. By this means he has recognized the presence of berberine in a great number of substances.—*Chemist and Druggist.*

Artificial Oil of Wintergreen.—At an evening meeting of the British Pharmaceutical Society, Mr. John Williams exhibited a specimen of this product, and read a short paper on the subject. The oil was prepared from salicylic acid, obtained by the new method of Kolbe, by the combination of carbonic anhydride and hydride of phenyl, in presence of caustic soda. The oil, or, more properly, salicylate of methyl, exhibited, was quite identical in flavor with that obtained from *Gaultheria procumbens*, and will no doubt in time be substituted for it. During the discussion which followed the reading of the paper, the production of salicylic acid was alluded to and the hope expressed that in a short time the cost of the acid might be reduced to a few shillings per pound. Dr. Paul said that the manufacture was exciting much interest in Germany, and he was glad to see that English chemists were following up the discovery. We can say the same of America, as, a few weeks ago, we had the pleasure of seeing some acid of home-production, and of inspecting the complete apparatus with which Dr. Squibb, of Brooklyn, is now operating upon quite a large scale. The pure product is of unexceptionable appearance, and a crude acid is also produced, which, for manufacturing purposes, as in the preparation of the oil, would be quite pure enough, being merely tinged with color.—*Canadian Journal of Pharmacy.*

Sulphovinate of Quinia.—Prof. P. Jaillard prepares this salt by introducing into a boiling solution of 214 grains of barium sulphovinate, in 12 fluid ounces of distilled water, 437 grains of officinal sulphate of quinia, filtering the solution, and evaporating on a water bath to a syrupy consistence. On cooling, a crystalline mass remains, which may be dried under a bell-glass with quick-lime, and reduced to a powder. The salt, when thus prepared, is soluble in twice its weight of cold water, and is hence well adapted for hypodermic use. When prepared by decomposing the sulphate of quinia by sodium sulphovinate, in presence of alcohol, it is much less soluble, requiring four parts of water.—*Ibid. American Journal of Pharmacy.*

Discovery of a Lost Plant.—There has lately come to light a case which will rank among the most curious on record. The mines of Laurium, in Greece, which were worked about 1,600 years ago,

are, in a great measure, composed of scoria, or the refuse of ancient mines, which still yields a high percentage of silver. In clearing away a mass of this refuse, a quantity of seeds were discovered, which must have been buried for at least fifteen centuries. Restored to conditions favorable for germination, to the heat of the sun and contact with the air, the seeds gave signs of life, burst their buds, and sent down roots into the earth and threw up stems into the light. When these last had budded and blossomed, lo! a lost species of the genus *Glaucium* (horned poppy) of the order *Papaveraceæ* was revealed. Pliny and Dioscorides frequently describe the flower in their writings with great particularity, as its golden corolla is very beautiful; but it has hitherto been unknown to modern science. Now, the plant which had disappeared from the face of the globe for 1,500 years or more is resuscitated by a strange and happy accident.—*Pharmacist.*

Caoutchouc.—A new source of caoutchouc is said to have been discovered in Burmah, in a creeping plant whose botanical name is *Chavanesia esculenta.* It is very common in Burmese forests, and is cultivated for the sake of its fruit, which has an agreeable taste, and matures when tamarinds are scarce.

Crab Orchard Salt.—At a recent Pharmaceutical meeting, Mr. Richard V. Mallison, speaking of this salt, said:

"Crab orchard salt is obtained from a tract of land in Lincoln county, Ky., about three miles wide and fifteen long, called the 'Epsom Belt.' Wells are dug in the ground, and the rain, percolating and lixiviating the soil, which contains a large percentage of the sulphates of sodium, potassium and magnesium, collects in these wells, and is from thence evaporated in iron kettles, and brought into the market in barrels. As found commercially it consists of varying proportions of organic matter and water, from 15 to 40 per cent., with balance of the above alkaline sulphates and some sodic chloride. The insoluble portion (I have obtained 30 per cent, upon solution and filtration) consists of silicaceous and organic matter, with about one-tenth of one per cent. of ferric oxide.

"A short time ago the product of this belt of land was leased or purchased by a stock company (Col. Shelby, Dr. Blackburn, and others), who now control the salt, and have raised the price of it from 23 and 27 cents to 63½ and 75 cents, selling it only in bottles. Regarding Dr. Blackburn's statement that 'a large quantity of artificial salt is sold, and that it is very injurious,' we agree to both statements. First. There is a very large quantity of artificial salt sold.

Second. The sale of this artificial salt *is* very injurious, but *only* to the *pecuniary* interest of the company, and not as Dr. Blackburn says, who in the interest of the company desires to impress people with the belief that it is injurious to their health. It is no more so than Epsom salt, or similar purgatives.—*Amer. Jour. of Phar.*

Puccina.—Mr. Lewis C. Hopp has found that the supposed alkaloid puccina is nothing more than sanguinarina with some resin and coloring-matter persistently adhering to it, and that sanguinarinic acid is a mixture of citric and malic acids.—*Amer Jour of Pharmacy.*

SPURIOUS SENNA.

Mr. E. M. Holmes, curator of the Museum of the Pharmaceutical Society of Great Britain, recently read a paper, at an evening meeting of the Society, describing a new variety of Senna which had appeared in the London Market. Although only two bales of this senna had, so far, been imported, he understood that the enormous quantity of two hundred tons had been consigned to the London agent, and would probably arrive before long. Examination of the leaves showed them to belong to a leguminous plant, possibly to the genus *Cassia*, but as this genus is an extremely large one, Mr. Holmes forwarded the specimen to Professor Oliver, who identified it as probably belonging to *Cassia brevipes*, D. C., a native of Costa Rica and Panama. A further examination of another sample containing some flowers and young twigs, confirmed this conclusion.

The plant is distinguished from its congeners of the sub-genus *Chamæcrista* by its short, very hairy pod, with the hairs golden yellow and not appressed. The leaflets are about one and a quarter inches long, elliptic in outline, the lower margin being less curved than the upper, and mucronate at the apex. The venation of the leaves is characteristic, and affords the most ready means of distinguishing between the spurious and officinal kinds. In *C. brevipes* three principal veins, diverging but slightly, proceed from the base to nearly the apex of the leaves; each of these veins is branched, pinnately, at a very acute angle, so that the leaflet appears to be furcate-veined.

In order to test the medicinal power of this so-called senna, Mr. Holmes took an infusion of one-quarter of an ounce of the leaves, but no purgative effect followed: nor had double this quantity the slightest effect. Hence, he concludes "that this new variety of senna is useless as a purgative, and can by no means replace or enter into competition with the officinal senna, even if it should be offered at a much lower

price; and that should it, hereafter, occur mixed with ordinary senna, it must be looked upon as an adulteration.

When the two hundred tons of this senna, said to be on its way to London, arrives at its destination, it is probable that it will not meet with a very ready sale, as the dealers will be forewarned, and the consignment—which by the way is double the amount of the entire annual importation of East India senna—may find its way to other markets, possible on this side of the Atlantic, and on this account we have given a more than ordinary prominence to this editorial note.—*Canadian Pharmaceutical Journal.*

TOXICOLOGY.

STRYCHNIA EATING.

Dr. Morey, in the *Pacific Medical Journal*, gives the following remarkable account of a strychnia-eater in his town: "I first became acquainted with this man in the fall of 1861, and soon learned of his habit of eating strychnia, after a long and continued debauch, and in a condition bordering on delirium tremens. The first time my attention was particularly called to it, he wished me to give him a bottle of strychnia, which I did at night about bed-time. He took the bottle, poured the strychnia into his hand, and threw it into his mouth as carelessly as though it were salt; and, in the course of half an hour, not feeling the effects from it that he wished, he repeated it, and continued to do so until he became perfectly sober. The quantity required would correspond to the length of time he had been drinking, and the quantity of whiskey he had drunk. I was struck with the wonderful effect it had to so completely sober him, and leave his system so entirely free of any nervous disturbance and without the reddened and bloated appearance of the face, the dull, heavy eyes, and irritable stomach of the drunkard. After a two weeks' drunk, with all the appearances of approaching delirium tremens, he got up in the morning with his mind clear, his eyes bright, his skin clear and fair, and with all the appearances of a man in perfect health and vigor, and ate as hearty a breakfast as usual, and went to his work as though he had never taken a drop of whiskey in his life. My curiosity being excited at what seemed so unaccountable an occurrence, I began questioning him as to when he commenced its use, and what induced him to take it, but found him very reticent, and have not to this day ascertained the causes that first led him to its use. All he will tell is that he commenced its use in 1856. From 1861 to 1867 I saw him very frequently, and almost as often have seen him take the strychnia, until it ceased to be a curiosity, except to study its physiological action. In every instance when he took it, every appearance of dissipation would disappear in a very short time. Whether strychnia is an antidote to alcoholic poison, and *vice versa*, was a study for which I could find no authority to guide my conclusions.

"From 1867 I did not see him until the month of November, 1874, when he came to this place and called on me for strychnia as of old. I told my clerk to give him all he wanted. He gave him a bottle from which he took about twenty grains. In an hour he was all right, and sober as ever. I have experimented with strychnia and nux vomica as an antidote to the effects of alcohol, and invariably with beneficial results."—*Pharmacal Gazette.*

CHLORAL HYDRATE AS AN ANTIDOTE TO STRYCHNIA.

A most extraordinary case of recovery from strychnia poisoning, due to treatment by chloral hydrate, is reported in a recent *Lancet*, by Dr. Charteris, physician to the Royal Infirmary, Glasgow. On March 12, a butcher of that city, in a despondent condition, bought from a chemist two sixpenny packets of Gibson's Vermin-Killer. These contained two grains of strychnia in each. Then he adjourned to the parlor of a public-house, bought some whiskey, in which he dissolved the contents of the two packets, added some ginger-ale, and drank off the mixture. In order to make sure work of it he bought another draught of ginger ale and drank it from the same glass, so as to dissolve any remnant of the poison. This was about 11.30 A.M. Then he walked across the street to a butcher's shop, and asked to be allowed to sit down. A succession of tetanic fits ensued, and these seem to have continued for several hours. About 1 P.M. an emetic of hot water and sulphate of zinc was given, which, however, produced only partial vomiting. It was 3.30 P.M. when he was brought to the Royal Infirmary. He was in great agony; violent tetanic spasms followed each other in quick succession, increasing in severity. With great difficulty the stomach pump was passed, but only some sour watery fluid was withdrawn. At 4.50 P.M. ten grains of chloral hydrate in syrup were administered. Twenty minutes after the dose was repeated, and at 5.30 twenty grains were given. Immediately afterwards there was a severe and prolonged spasm, succeeded by a flaccid state of the muscular system, hurried respiration, quickened pulse, and drooping eyelids—phenomena which indicate the effect of chloral. Three more doses, ten grains each, were administered between this and 9.30 P.M., the symptoms of poisoning subsiding. The patient was dieted on milk and rice, and in four days had completely recovered. He said if he wished to die again he would choose something other than Gibson's Vermin-Killer. Dr. Charteris afterwards tried some experiments on rabbits, and found that the administration of chloral

hydrate after strychnine most decidedly checked the poisonous effects, though in one case where a longer interval had been allowed to elapse between the poison and the antidote the animal was paralyzed from the middle of the spine downwards. It is stated, also, to account for the slowness of the action of the strychnine in the man's case, that he had previously taken a substantial breakfast of ham and eggs.

ARSENIC AS ANTIDOTAL TO ACUTE ALCOHOLISM.

Henry M. Fiske, M.D., of San Francisco, writes: "In the April number of the *Pacific Med. and Surg. Journal* I find an article by Doctor Morey on the antidotal powers of strychnia in cases of alcholic poisoning.* It called to my mind a case in which arsenic seemed to possess the same power—the case of Dr. C.—a fellow-student of mine, whom I had known intimately since the year 1840. He became addicted to the excessive use of alcoholic drinks. He was an able physician, and had, both in Michigan and in this State, an extensive practice, and was well known to many physicians, whose testimony can be had, if needed, to corroborate my statements. He would have an extended spree, varying from one to three weeks in duration. When he wished to sober up at the end, or if, during the paroxysm, he desired for any purpose to be himself again, he would commence and drink one-half ounce of Fowler's solution, repeating the dose in one hour, if necessary, and continuing the same dose at the same or shorter intervals till sometimes he had swallowed the enormous quantity of five or six ounces. He would then be apparently as fresh and vigorous as though he had never been intoxicated. from two to five hours being all the time generally necessary to bring him to his normal condition. Often have I been sent for to consult with him and found him unfit for business, when he would retire to a room, call for or take from his saddle-bags his "Fowler," as he called it, and in two or three hours he would be ready for business. As already hinted, many who read this article will remember him, an honorable, intelligent physician, a noble man in every sense of the word, but who acquired the unfortunate habit of using alcoholic stimulants to excess. He finally died of phthisis, and lies buried near one of our flourishing mining villages."

The Capacity of Plants to Absorb Arsenic from the Earth.—At the last annual meeting of the National Academy of Sciences a paper was read by Dr. J. L. Leconte on "The Use of Mineral Poisons

* See p. 275, New Remedies.

for the Protection of Agriculture." There was considerable discussion on the subject of the paper. Paris green, it appears, has been recommended for the destruction of the "Colorado potato-bug," and, as a consequence, it was said the demand for the article had become so large that one chemist in Baltimore manufactured 3,000 pounds a day, and druggists in small Western towns ordered it by the ton. It is composed of arsenic and acetate of copper, which are poisonous to both animal and vegetable life. It would not be taken up by the leaves of plants, but would be washed into the soil, which would soon become incapable of supporting vegetation. It was a grave question what chemical changes might take place in the soil that would enable plants to take up these poisons; that such may occur has been recently proved by analyses made by Professor Silliman. The loose way in which this poison was handled, and the absence of all restriction upon its sale, were very alarming. Many deaths had occurred, either through accident or design, from Paris green which had been purchased to kill roaches or other vermin.

The increasing sale and use of strychnia for similar purposes was also alluded to. The general use of aniline colors in candy-making and for coloring syrups and jellies in imitation of the fruits from which they were supposed to be made, was instanced as one of the ways in which the health of the people was daily being injured.

Dr. David Davy, years ago, tested the capacity of plants to take arsenic from the soil. Experiments were made with turnips grown on ground that had been fertilized with superphosphate of lime, in the preparation of which impure sulphuric acid had been used, and arsenic, on analysis, was readily detected.—*Druggist's Circular and Chemical Gazette.*

Mode of Death from Inhaling Nitrous Oxide.—M. Magitot asserts that the mechanism of death is very different from the employment of nitrous oxide and from other anæsthetics, as ether and chloroform. When it results from the administration of the two latter, it is by syncope, but when from nitrous oxide, it is by pure and simple asphyxia.—*L' Union Médicale*, 16 March, 1875.

Mr. Darin, at a meeting of the Société de Chirurgie on March 3d, read a paper in which he denied that nitrous oxide acted by producing asphyxia. This gave rise to discussion, and the following conclusions were adopted: 1. That nitrous oxide does act by inducing asphyxia. 2. That ether has been too much neglected in Paris, and that it would be desirable to return to its employment.

PRESCRIPTIONS AND FORMULÆ.

Syrups for Mineral Waters.

THE following list of fruit syrups for use with mineral waters is taken from *The Druggists' Circular:*

1. SIMPLE SYRUP.

White sugar..... 10 pounds.
Water..... 1 gallon.
Isinglass (best).... ¼ ounce.
(Or the white of an egg) "

Dissolve the isinglass in hot water, and add it to the hot syrup. The syrup is to be made with gentle heat, and then strained.

2. LEMON SYRUP.

Grate off the yellow rind of lemons, and beat it up with a sufficient quantity of granulated sugar. Express the lemon-juice, add to each pint of juice 1 pint of water, and 3½ pounds of granulated sugar, including that rubbed up with the rind; warm until the sugar is dissolved, and strain.

3. ANOTHER FORMULA.

Simple syrup..... 1 gallon.
Oil of lemon..... 25 drops.
Citric acid..... 10 drachms.

Rub the oil of lemon with the acid, add a small portion of syrup, and mix.

4. ANOTHER FORMULA.

Dissolve 6 drachms of tartaric acid and 1 ounce of gum-arabic, in pieces, in one gallon of simple syrup; then flavor with 1½ fluid drachms of best oil of lemon. Or, flavor with the saturated tincture of the peel in cologne spirits.

5. STRAWBERRY SYRUP.

Strawberry juice..... 1 pint.
Simple syrup ..... 3 pints.
Solution of citric acid
(see No. 34)..... 2 drachms.

6. ANOTHER FORMULA.

Fresh strawberries... 5 quarts.
White sugar ..... 12 pounds.
Water..... 1 pint.

Sprinkle some of the sugar over the fruit in layers, and allow the whole to stand for several hours; express the juice and strain, washing out the pulp with water; add the remainder of sugar and water, bring the fluid to the point of boiling, and then strain. This will keep for a long time.

7. RASPBERRY SYRUP.

Raspberry juice..... 1 pint.
Simple syrup ..... 3 pints.
Solution of citric acid 2 drachms.

Raspberry syrup may also be made in a way similar to No. 6 for strawberry.

8. BLACKBERRY SYRUP.

Blackberry juice..... 1 pint.
Simple syrup..... 3 pints.
Solution of citric acid.. 2 drachms.
Brandy (to 1 pint of
juice) ..... 1 ounce.

9 RASPBERRY SYRUP (*artificial*).

Orris root (best).... 1 ounce.
Cochineal..... 2 drachms.
Tartaric acid..... 2 drachms.
Water..... 2 pints.

Powder the orris root coarsely together with the cochineal, infuse in the water with the acid for twenty-four hours; strain and add four pounds of sugar, raise to the boiling-point and again strain.

10. CHERRY SYRUP.

Cherry juice..... 1 pint.
Simple " ..... 3 pints.
Solution of citric acid 2 drachms.

[*Cherry juice* may be prepared by taking of fresh cherries a convenient quan-

tity. Bruise them with the stones and let them stand for three days, then express the juice and set aside until, after fermentation, it has become clear.]

11. VANILLA SYRUP.

Fluid ext. of vanilla. 1 ounce.
Citric acid..... ½ ounce.
Simple syrup ..... 1 gallon.

Rub the acid with some of the syrup, add the extract of vanilla, and mix.

12. VANILLA CREAM SYRUP.

Fluid ext. of vanilla.. 1 ounce.
Simple syrup ..... 3 pints.
Cream (or condensed milk)..... 1 pint.

May be colored with carmine.

13. CREAM SYRUP.

Fresh cream..... ½ pint.
Fresh milk..... ½ pint.
Powdered sugar..... 1 pound.

Mix by shaking and keep in a cool place. The addition of a few grains of bicarbonate of soda will for some time retard souring.

14. GINGER SYRUP.

Tincture of ginger... 2 fl. ounces.
Simple syrup..... 4 pints.

15. ORANGE SYRUP.

Oil of orange..... 30 drops.
Tartaric acid ..... 4 drachms.
Simple syrup ..... 1 gallon.

Rub the oil with the acid and mix.

16. PINEAPPLE SYRUP.

Oil of pineapple.... 1 drachm.
Tartaric acid..... 1 "
Simple syrup..... 6 pints.

17. ANOTHER FORMULA.

Pineapple juice (by expression) ..... 1 gallon.
Sugar..... 15 pounds.
Fruit acid (see below) 2 ounces.

18. ORGEAT SYRUP.

Cream syrup..... 1 pint.
Vanilla syrup..... 1 pint.
Oil of bitter almonds. 4 drops.

19. NECTAR SYRUP.

Vanilla syrup..... 5 pints.
Pineapple syrup..... 1 pint.
Strawberry, raspberry, or lemon..... 2 pints.

20. SHERBET SYRUP.

Vanilla syrup ..... 3 pints.
Pineapple syrup..... 1 pint.
Lemon syrup..... 1 pint.

21. GRAPE SYRUP.

Brandy..... ½ pint.
Spirits of lemon..... ¼ ounce.
Tinct. of red saunders 2 ounces.
Simple syrup..... 1 gallon.

22. BANANA SYRUP.

Oil of banana ..... 2 drachms.
Tartaric acid..... 1 drachm.
Simple syrup..... 6 pints.

23. COFFEE SYRUP.

Coffee, roasted..... ½ pound.
Boiling water ..... 1 gallon.

Enough is filtered to make one-half gallon of the infusion, to which add

Granulated sugar .... 7 pounds

24. WILD CHERRY SYRUP.

Wild cherry bark (in coarse powder).... 5 ounces.

Moisten the bark with water and let it stand for twenty-four hours in a close vessel. Then pack it firmly in a percolator, and pour water upon it until one pint of water is obtained.

To this add

Sugar..... 28 ounces.

25. WINTERGREEN SYRUP.

Oil of wintergreen... 25 drops.
Simple syrup..... 5 pints.
Burnt sugar (to color) q.s.

26. SARSAPARILLA SYRUP.

Oil of wintergreen... 10 drops.
Oil of anise..... 10 "
Oil of sassafras..... 10 "
Fluid ext. of sarsaparilla ..... 2 ounces.
Simple syrup..... 5 pints.
Powdered ext. of liquorice ..... ½ ounce.

27. ANOTHER FORMULA (Parrish's).

Simple syrup	4 pints.
Comp. syrup of sarsaparilla	4 fl. ounces.
Caramel	1½ "
Oil of wintergreen	6 drops.
Oil of sassafras	6 "

28. MAPLE SYRUP.

Maple sugar	4 pounds.
Water	2 pints.

29. CHOCOLATE SYRUP.

Best chocolate	8 ounces.
Water	2 pints.
White sugar	4 pounds.

Mix the chocolate in water, and stir thoroughly over a slow fire. Strain, and add the sugar.

30. COFFEE CREAM SYRUP.

Coffee syrup	2 pints.
Cream	1 pint.

31. AMBROSIA SYRUP.

Raspberry syrup	2 pints.
Vanilla syrup	2 "
Hock wine	4 ounces.

32. HOCK AND CLARET SYRUP.

Hock or claret wine	1 pint.
Simple syrup	2 pints.

33. SOLFERINO SYRUP.

Brandy	1 pint
Simple syrup	2 pints.

34. FRUIT ACID (used in some of the syrups).

Citric acid	4 ounces.
Water	8 "

35. CAPSICUM SYRUP.

Tinct. of capsicum	1 ounce.
Simple syrup	2 pints.

Heat the syrup, add the tincture, and when the alcohol has evaporated, mix immediately.

A Convenient Anodyne.

Take of elastic collodion, one ounce; hydrochlorate of morphia, fifteen grains. Dissolve the morphine salt in the collodion. Spread with a camel-hair brush some of this solution on the painful part, and place some oiled silk on the spot.

Iodoform Crayons.

M. Gallard furnishes the following formula for this new preparation:

Take of Iodoform powder	7½ grs.
Gum arabic powder	2½ drs.
Mucilage acacia	q. s.

Make into a pilular consistence, and divide into ten cylinders, each about one inch long, and dry in the air for twenty-four hours. These crayons are inserted into the cavity of the uterus, and retained in position by a tampon of cotton. They are highly recommended for superficial ulceration of the neck of the womb. These crayons disintegrate rapidly, and should be kept tightly sealed in a colored bottle.

Iodised Glycerine.

The *American Druggists' Circular* publishes a formula for iodised glycerine, received from a correspondent, who is of opinion that it will be generally preferred to the officinal tincture. It has the advantage of not staining the skin, yet is equally efficacious with the unsightly preparations now in use.

Iodide of potassium	1 oz.
Re-sublimed iodine	1 oz.
Glycerine, to make	16 fluid ozs.

Powder the iodide and dissolve in about four ounces of the glycerine; add the iodine and rub well in a mortar until it is dissolved. Lastly, add the remainder of the glycerine.

Local Treatment of Lichen Urticationis.

An application to this disease, which chiefly affects children; is characterised by weals, papules, and severe itching, is worse at night, and independent of any discoverable parasite, is treated by Dr. Mackey with an ointment of

Calomel,
Ext. of bellad., ā ā ..... p. æq.

or the following:

℞ Storacis..... oz. 1
Ceræ flavæ..... gr. 120.
Olie olivæ..... fl. oz. ss.
M.

Cod-Liver Oil with Quinine.

Twelve years ago, Dr. Attfield called the attention of the Pharmaceutical Society to the fact that the natural alkaloids combined with oleic acid to form oleates which dissolve in oil. The suggestion has not, however, proved of much practical use in pharmacy as yet.

In the *Pharmaceutical Journal* (Feb. 13th) Mr. M. H. Stiles, of Hull, suggests that this fact might be turned to account in preparing cod-liver oil with quinine. Having lately had occasion to prepare some cod-liver oil with quinine, and found the product, as prepared by the usual process, unsatisfactory, the idea occurred to him of preparing the oleate and dissolving that in the cod-liver oil. The result was perfectly satisfactory. He says that the preparation had the characteristic taste of quinine and cod-liver oil, the oleic acid from its small amount not being perceptible.

The preparation may be made as follows:—

Take of Sulphate of quinine.....	60 grains.
Diluted sulphuric acid....	1 fluid drachm.
Solution of ammonia.....	a sufficiency.
Distilled water..	a sufficiency.
Purified oleic acid.....	1 fluid ounce.
Cod-liver oil.....	29 fluid ounces.

Dissolve the quinine in the diluted sulphuric acid mixed with 4 oz. of water, add a slight excess of ammonia, stir well, transfer the whole to a calico filter, and after carefully washing the precipitate, press it between folds of bibulous paper and dry by the heat of a water-bath. Dissolve the quinine thus obtained in the oleic acid by the aid of a gentle heat, mix the solution whilst warm with 5 oz. of cod-liver oil also warm, strain through cotton wool or filter through paper if necessary, then add the remainder of the oil. The product should measure 30 fl. oz.; each tablespoonful (fl. ʒ ss.) contains oleate of quinine equal to one grain of sulphate.

Glycerine-Sichel.

The *Gazette Obstet. et Gaz. de Joulin*, according to *La Tribune Médicale*, states that this preparation, which consists of pure glycerine and the yolk of egg, and has the appearance and consistence of honey, is highly praised as a local application for several purposes. In fissures of the nipple of nursing women it affords relief when other remedies fail. It afforded relief in every one of eleven such cases in which it was applied. In fissures of the mammæ, it protects the skin from the action of the saliva of the child and from sour milk. In ruptures of the perinæum, it protects the torn surfaces from being irritated by the urine and lochia. It is daily used in Dr. Vernier's clinics to anoint the hands when examining suspicious women, and is found to be a perfect protection from infection.

This preparation does not putrefy, nor does it become rancid like ointments. It assists in cleansing wounds, and promotes primary union.—*Am. Jour. Med. Sci.*, Jan., 1875.

Formula for Vomiting in Gastric Catarrh.

Mr. T. Lauder Brunton gives the following formula, which he has found very useful in gastric catarrh and subacute gastritis:

℞ Bismuthi subnit. gr. x.
Potass. bromid. gr. xv.–xx.
Acid hydrocyan. dil. ♏ v.
Spt. chloroform. ♏ x.
Mucilag. tragacanth. fl. ʒ ij.
Aqua ad fl. ℥ i.

Sig.—To be taken every three or four hours.

The medicine should be given about ten minutes before food, so as to diminish the irritability of the stomach and prevent the rejection of the nourishment, and it is often advisable to make the pa-

tient lie down on the left side during or immediately after the meal. A tendency to vomit is often increased by lying on the right side.—*Practitioner*, Dec., 1874.

Soluble Compounds of Santonine.

The following have been proposed to obviate the slight solubility of santonine:

SYRUP OF SANTONATE OF SODA.

Santonate of soda.....	30 grains.
Simple syrup.....	18 fl. ounces.

Dissolve. Each fluid ounce represents one grain of santonine.

SANTONATE OF SODA.

Santonic acid (Santonine) powdered.....	2 ozs.
Caustic soda lye.....	4 fl. ozs.
Distilled water.....	12 "

Heat on a sand-bath until the solution is complete, which usually requires about half an hour. On cooling, crystals are formed that contain fifty-four per cent. of santonine.

A Quick Process for Chlorine Water.

Louis S. Cohen (Brooklyn, N. Y.) writes: Many druggists have occasion to find fault with the impracticable, or rather not very ready method of preparing chlorine water to order, by means of peroxide of manganese, salt, and sulphuric acid heated in a retort. I propose the following ready process, by which I am always able to prepare it at five or six minutes' notice. I hope the improvement will be found useful and acceptable to the profession:

Chloride of sodium....	1 drachm.
Sulphuric acid.....	2 fl. drachms.
Red oxide of lead.....	6 drachms.
Water.....	8 ounces.

Triturate the sodium and lead intimately, place in an eight-ounce vial containing the water, add the acid, cork the bottle, and agitate till the insoluble matter is entirely white.

To Make Brandy.

Take 20 gallons proof spirits, 5 gallons pure cognac brandy, 1¼ ounce oil of cognac, ¾ ounce œnanthic acid, ¾ ounce acetic ether, 1½ ounces tincture of kino, 1 pint simple syrup, mix, and color to suit with burnt sugar. If it is desired to imitate any other brandy, use that instead of the cognac. But this method of adulteration costs too much, as it requires pure brandy, and oil of cognac is rather expensive. The following will not cost so much:

To make cognac brandy, 20 gallons proof spirits, 2 ounces acetic ether, 2 ounces acetic acid, 2½ ounces tincture of kino, 5 pounds bruised raisins, 2 pints simple syrup, color with sugar, let it stand two or three weeks and draw off. —S. P. Sharples, *in Journal of Applied Chemistry.*

Alkaline Chloro-Albuminate of Mercury for Hypodermic Use.

No. 1.

℞ Hydrarg. chlor. corros...	ʒ vj. ɔ ij.
Ammon. chlorid.....	ʒ iv.
Sodii chlorid.....	ʒ i.
Aquæ destillat.....	ʒ iv.

Dissolve and filter.

No. 2.

Dissolve the white of an egg in 4 oz. of distilled water; filter.

Mix the two solutions, and filter. ♏xi. contain about $\frac{1}{61}$ gr. of the mercurial salt.

Tincture of Gelseminum.

℞ Gelseminum, in fine powder.	ʒ iv.
Diluted alcohol.....	f ʒ xij.

Macerate fifteen days and filter; or prepare by percolation, making the product measure twelve fluid ounces.

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A Report on the Hygiene of the United States Army, with Descriptions of Military Posts. Circular No. 8, War Department, Surgeon-General's Office. Washington: Government Printing-Office. 1875.

This report resembles, in most respects, the one of Dec. 5, 1870 (Circular No. 4, S. G. Office), and comprises the returns made by the surgeons attached to two hundred and thirty-eight military posts on—I., the food of the army, viz.: its quality, quantity, and mode of preparation. The amount derived from purchase with the post fund, and by hunting, fishing, and cultivation of the post garden; frequency of inspections; diseases dependent upon quality or character of food; character of special cooking apparatus; diet of sick, etc., etc. II. Duties of medical officers in scouting parties and expeditions. Nature and amount of medical supplies required; how carried. Means of transportation for wounded. III. On military punishments, and their effect on the health and *morale* of the soldier. IV. Personal cleanliness of the men. Post regulations and facilities in regard to bathing, etc.

The medical statistics and the meteorological tables for each post have been compiled under the direction of Assistant Surgeon J. J. Woodward, and the whole compilation and editing has been done under the supervision of Assistant Surgeon John S. Billings, who, in the prefatory chapter gives some exceedingly interesting observations regarding various matters that are embraced in the report. The following are a few of the features that attract attention: The standard for recruits is now, for artillery and infantry, five feet four inches and upwards in height, and weight not less than one hundred and twenty pounds, nor more than one hundred and eighty pounds. For cavalry not less than five feet five inches, and not more than five feet ten inches in height, and weight not to exceed one hundred and fifty-five pounds. The standard of health and physical perfection of the enlisted men on entering the service is above the average. These men, thus selected, have their food, habitations, clothing, and occupations prescribed for them, yet, setting aside injuries, to which the soldier is especially liable, the mortality from disease among these picked men is distinctly greater than among men of the same age in civil life under the same conditions of climate. Dr. Billings thinks he finds sufficient cause for this difference in the hygienic conditions under which our troops are placed, and proceeds to consider the subject under the following heads: I. Habitations, including barracks, quarters, and guard-houses, with their appendages. II. The food of the army and its preparation. III. The clothing of the army. IV. The hospital and medical supplies.

A large amount of space is devoted to discussing food and the modes of preparing it. The suggestions made by different surgeons, and the conclusions which close the section are worthy of special attention. The subjects of clothing and hospitals are treated at considerable length. Respecting the latter, Dr. Billings says: "The fact is that hardly any two hospitals can, or should be alike. The 'pavilion plan,' which for a time was supposed to be a perfect panacea against all evil, has been found, by sad experience, to furnish no security against the evils

summed up in the word 'hospitalism,' and the results of practical trial in recent wars, both in this country and in Europe, have led to the recommendation of the so-called 'barrack hospitals,' that is, temporary wooden structures, intended to last but ten or twelve years; in fact, such as now used in the army." As regards the administration of this latter class of hospitals, Dr. Billings says: "It is not possible, in a barrack-hospital, to obtain both satisfactory heating and ventilation, with the temperature of the external air near zero, by any stove or fire-place placed in the ward itself, and therefore ventilation must be to some extent sacrificed. It is impossible to warm the fresh entering air, and at the same time introduce it at any point except at the stove itself, while the foul air must either be taken out at the ceiling, or by the stove or fire-place. It is evident that the air surrounding the beds cannot be directly changed in this way, as there is no provision for mixing it with the fresh in-coming air. In our hospitals this is a matter of very little practical importance, and I allude to it only because many persons seem to think that there are no difficulties in ventilating a one-story barrack building."

The report embraces five hundred and sixty-nine pages, in addition to the sixty-nine devoted to Dr. Billings' report, and is illustrated with seventy-six wood-cuts, and fourteen lithographs.

SYPHILITIC LESIONS OF THE OSSEOUS SYSTEM IN INFANTS AND YOUNG CHILDREN. By R. W. TAYLOR, M.D., Surgeon to the New York Dispensary, and Physician to Charity Hospital, N. Y. New York: William Wood & Co. 1875.

SINCE 1870 Dr. Taylor has studied and written upon the subject of which this book treats, and articles contributed by him to the *American Jour. of Syphilography and Dermatology* in 1871, and to the *Archives of Scientific and Practical Medicine* in 1873, are already familiar to the readers of medical journals both in this country and abroad. Until Wegner's article was published in 1870, but little was written or known about the manifestations of this class of affections, and even since that time the literature of the subject is somewhat scanty, no one having contributed more to it than Dr. Taylor, and none being better fitted than he, either by study or observation of cases, to write on the subject. About one-third of this work is devoted to the citation of cases, of which there are reported twelve that came under Dr. Taylor's personal observation, ten cases reported by Roger, Fournier, Bertin, Archambault, Bärensprung, and Peitegnat, two cases of Bulkley's, one by Morgan, one by Ranvier, one by Bargioni, one by Valeix, eight by Parrott, twelve by Wegner, and twelve more by Waldeyer and Köbner, making sixty cases in all. The balance of the book is chiefly devoted to an exhaustive review of the clinical history of syphilis as it affects the bony tissues of children, which, being mainly the result of Dr. Taylor's personal observation, entitles him to very great credit as a careful clinical observer. Little space is devoted to therapeutics, since, as might be inferred, such affections are more or less amenable to the treatment which would be proper in other manifestations of the general disease. In order to complete the subject sections are added on "The Swellings which occur later in Life of those Hereditarily Syphilitic, at the Junction of the Diaphyses with the Epiphyses," and "The Course of the Gummous Osseous Lesions of Older Children contrasted with the Lesions of Infancy."

Those who are interested in the study of syphilis and the chronic affections of infancy cannot afford to dispense with so exhaustive a work.

As regards the style of publication, nothing has been issued by the publishers in a more elegant manner.

A Manual of Diet in Health and Disease. By Thomas King Chambers, M.D., Oxon., F.R.C.P., Lond., etc., etc. Philadelphia: Henry C. Lea. 1875.

There are few who have not already read one of the editions of Dr. Chambers' work on "The Indigestions," and been charmed with the clearness and ease of his writings, and the practical nature of his observations. To such his last work needs no commendation. To others we will quote his short preface, which seems to have been especially calculated for the convenience of his reviewers, as well as to express the opinions of the author:

"The aims of this Hand-book are purely practical, and therefore it has not been thought right to increase its size by the addition of the chemical, botanical, and industrial learning which rapidly collects round the nucleus of every article interesting as an eatable. Space has been thus gained for a full discussion of many matters connecting food and drink with the daily current of social life, which the position of the author as a practising physician has led him to believe highly important to the present and future of our race."

One hundred pages (*circa*) are devoted to Theories of Dietetics; on the choice, preparation, and digestion of food, and on nutrition or General Dietetics. Part II., on the Special Dietetics of Health, relates to the regimen of infancy and motherhood, childhood and youth, commercial life, literary and professional life; to noxious trades; athletic training; hints for healthy travellers; effects of climate, starvation, poverty and fasting; the decline of life, and to alcohol. Part III., on Dietetics in Sickness, embraces chapters on dietetics and regimen of acute fevers; the diet and regimen of certain other inflammatory states; the diet and regimen of weak digestion, gout and rheumatism, gravel, stone, albuminuria, and diabetes, deficient evacuation, nerve disorders, scrofula, rickets, and consumption, and disease of heart and arteries.

As an instance of the practical view Dr. Chambers takes of the subject the work treats of, we quote the opening sentences in his chapter "On the Preparation of Food:" "The most important element in cooking is, indubitably, the cook. And the most important of a cook's virtues is shown in the selection of food. A good cook is, to a certain extent, born, not made; and if born deficient in necessary faculties, the novice should be made to understand that she has mistaken her mission. The necessary faculties are those of accurate taste and smell—with which, joined to enthusiasm and punctuality, she may become a useful and honored member of society—without which, she is simply an incumbrance. . . . . Cleanliness may be taught, a variety of receipts may be bought, but a delicate nose is beyond price." After these samples—and they by no means exhaust the good things on the same page even, none can doubt the readable character of the work. If space allowed, we could quote abundant passages to prove that his principles are as practical as his method of presenting them is agreeable.

Cyclopædia of the Practice of Medicine. Edited by Dr. H. von Ziemssen, Professor of Clinical Medicine in Munich, Bavaria, and Dr. Albert H. Buck, of New York. William Wood & Co., New York. 1875.

Vol. II. Acute Infectious Diseases, by Prof. Thomas, of Leipzig; Dr. Curschmann, of Berlin; Dr. Zuelzer, of Berlin; Prof. Hertz, of Amsterdam; and Prof. Ziemssen. pp. 751.

Vol. III. Chronic Infectious Diseases, by Prof. Christian Bäumler, of Erlangen; Prof. Arnold Heller, of Kiel; and Prof. Otto Bollinger, of Munich. pp. 672.

The second volume of this series completes the section on Acute Infectious Diseases, which was commenced in the volume preceding it, the subjects treated being

Varicella, Measles, Rubeola (and Rötheln), and Scarlet Fever, by Thomas (Edward Wigglesworth, M.D., of Boston; Edward Frankel, M.D., and John C. Jay, Jr., M.D., of New York, translators); Variola and its Modifications, and Vaccination, by Curschmann (George H. Fox, M.D., of New York, translator); Erysipelas, Miliary Fever, Dengue, Influenza, and Hay Fever, by Zuelzer (James C. White, M.D., of Boston, and J. Haven Emerson, M.D., of New York, translators); Malarial Diseases, by Hertz (Edward W. Schauffler, M.D., of Kansas City, translator); and Epidemic Cerebro-Spinal Meningitis, by Von Ziemssen (A. Brayton Ball, M.D., of New York, translator).

The third volume is devoted to Chronic Infectious Diseases, and consists of the following essays: Syphilis, by Bäumler (Edward B. Bronson, M.D., of New York, and William Ashbridge, M.D., of Philadelphia, translators); Glanders, Anthrax, Hydrophobia, The Foot and Mouth Disease, and Infection by the Bite or Sting of Poisonous Animals, by Bollinger (Arthur H. Nichols, M.D., of Boston, and Edward L. Keyes, M.D., of New York, translators); and Echinococcus, Cysticercus Cellulosæ and Trichinæ, by Heller (James G. Hyndman, M.D., of Cincinnati, translator). Everything that has been said in a general way in relation to the first volume of this series can also be said of these. In style and execution the works are among the handsomest issued by the medical presses of the country. The translators have done their work with exceptional skill, and we have yet to meet with an unfavorable comment upon the quality of the original material. The positions held by the writers of the essays are a sufficient guarantee of their capacity to write upon the different subjects. A feature of special excellence in the work is the incorporation of lists of authorities cited, and works that may be consulted; although, owing to the Germanic source of the work, references are sometimes made to articles and translations in German journals which, in some instances, appeared first in English, French, and American publications, and would naturally be more available to the English and American readers who might wish to make use of them if their original sources were also mentioned. This work should be done by the writer of the article when he has his authorities at hand, and, in fact, in most instances, it appears to have been attended to. There are, however, so many volumes of the series yet to be issued, that it is reasonable to hope that in future so slight an addition may not be overlooked when it will add so considerably to the value of the work for those who can consult only English and French authorities.

We observe in *The Medical Record* of June 12th, that on page 290 of Volume III., in the second text line from the bottom, the word "ounces" should read "drachms." As the amount relates to the dose of a solution of corrosive sublimate (liquor van Sweiten), the difference is important.

PHYSICIANS' OFFICE CASE-RECORD AND PRESCRIPTION BLANK-BOOK. Second edition.

PHYSICIANS' POCKET CASE-RECORD AND PRESCRIPTION BLANK-BOOK.

MEDICAL CHART OF TEMPERATURE, PULSE, RESPIRATION, AND REGIONS. Cincinnati: Case-Record Company, 1875.

This company are furnishing, for the use of physicians in private and hospital practice, a very valuable set of blanks for the purposes indicated by their titles. The first and second differ mainly in size, and afford means for keeping in the form of a "stub" a copy of each prescription written on the adjoining blank; the

back of the preceding "stub" having a blank form for recording the chief features of the case.

The Medical Chart is a foolscap sheet of writing-paper, having on one side a heading for the facts, which should be recorded in every case, and ruled lines for the continuation of the history and treatment; additional sheets of common foolscap serving to continue the memoranda, if required. The back of the sheet has an admirably arranged blank for recording temperature, pulse, respirations; and four outline figures for the graphic method of indicating diseased regions. To accustom one's self to the systematic use of such a set of blanks may at first be a little troublesome, but in the end the advantages derived from even fragmentary records of practice, are worth the labor and effort it costs.